Thermal Label Printing Scale

LP-II

SERVICE MANUAL

Version 3.0

CAS
S · C · A · L · E

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This warranty gives you specific legal rights, and you may have other rights that may vary from jurisdiction to jurisdiction.

This warranty applies <u>ONLY</u> to the LP-Series label printing scales.

WARRANTY PERIOD: **<u>1 (ONE) YEAR</u>**

To locate the ***CAS Authorized Dealer*** or ***CAS Authorized Service Center*** nearest you call:

(201) 933-9002

or write to:

CAS (USA) Corporation • 99 Murray Hill Parkway • East Rutherford, NJ 07073

1 General

1.1 Introduction

Thank you for purchasing the CAS LP-2 price computing electronic printing scale. We have designed this equipment with many advanced features, high quality construction, and user-friendly menu driven programming. We are confident that you will find the CAS LP-2 scale will meet all of your most demanding needs.

Sales data is easily acquired through many of the available reports which are quickly accessible through the on-screen menus. This scale comes complete with enhanced standard features including: 4 inch per second printing speed, 53 preset keys (106 using the SHIFT key), and several operation modes that enable you to control & limit access to the scale for increased security.

Communication is another powerful feature of the LP-II. It comes with an RS-232 port, which can tie a scale to a personal computer (P.C.) for exporting or importing program data. Because PLU and all other data files are kept locally in each scale's RAM memory, the scale's speed is the same in a network setting or as a stand-alone unit. For larger operations, there is an in-store network that can have up to 99 scales, connected via Ethernet cables or an optional wireless bridge.

The LP-2 can be easily used with a wide variety of industry standard thermal labels. By simply entering a label's length and width dimensions, you can use practically any of them on the LP-2! You can also use continuous strip labels or even thermal paper. You also can print logos, templates, Nutri-Facts panels, ingredient messages, advertisement lines, and more.

Remember, for proper installation and maintenance please refer to the LP-2 Service Manual. A wide variety of supplies and accessories are available through CAS (USA) Corporation for whatever your new and increasing demands may require. Before attempting any repairs or servicing please look over this manual carefully or contact CAS (USA) Corp.

The LP-2 also comes with an enhanced version of our popular software package. This software runs on any PC using the Windows® 98/2000/XP operating system. You can design your own label formats on your computer screen and download them to the scale or save them on your hard drive. The labels you see on-screen appear exactly "as they will print." You can also manage all of the LP-2's programs and options like pricing, PLU programming, etc. You can upload data from an LP-2 to a PC or transmit data from one scale to another, perfect as an emergency backup system. All this and many more features are packed into the LP-2 software package. This makes the LP-2 software package an indispensable commodity for your business.

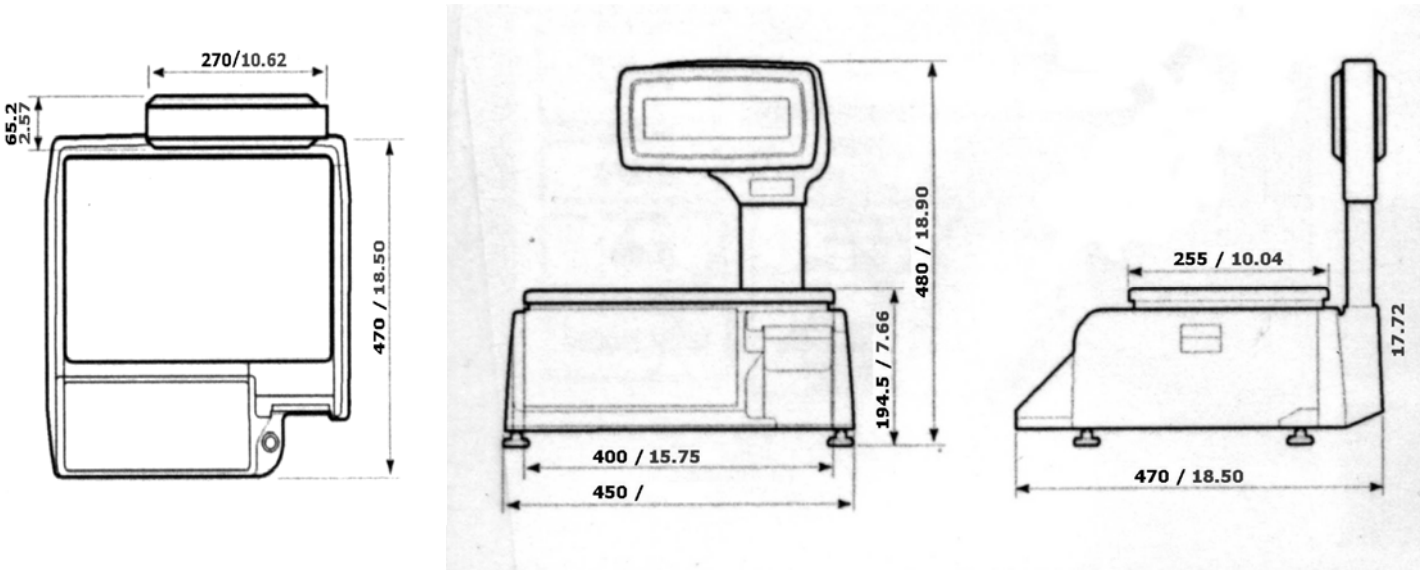
To find the Authorized CAS Dealer nearest you, please visit our web-site at **www.cas-usa.com**.

1.2 Model and Specifications

MODEL	**LP-2, (version 2.23)**
CHARACTERS PER PLU	**Ingredients:** 2000 characters, **PLU Name:** 114 characters
DISPLAYS	WEIGHT: 5 digits (5 max) UNIT PRICE: 6 digits (8 max) TOTAL PRICE: 7 digits (9 max)
GENERAL PROGRAMMABLE DATA	▪ *Scrolling Messages : 32 @ 80 Char* ▪ *Sales Messages : 32 @ 40 Char* ▪ *Store Name : 150 Char* ▪ *Departments : 32 @ 20 Char* ▪ *Users/Clerks : 99 @ 20 Char* ▪ *Label Formats : 999 @ 30 Char* ▪ *Label Formats : Over 50 Built-In* ▪ *Origin : 400 @ 25 Char*
INTERFACES	RS-232 Serial Ports: COM1 (9 pin female), COM2 (25 pin female), Ethernet
LABEL SIZES	**Width:** 10mm~80 mm (0.40 in.~3.15 in.) **Length:** 20mm~170 mm (0.94 in.~6.69 in.) **Length:** 850 mm (33.46 in.) max length using linked formats.
MAX TARE	FULL CAPACITY
MEASUREMENT TYPE	LOAD CELL
MEMORY CAPACITY	Over 4000 PLUs
NETWORK SPECIFICATIONS	▪ 99 Scales MAX ▪ 99 Clerks MAX ▪ 100m (0.06 miles) max cable length ▪ 4 Mbps Network Specifications ▪ Wireless Ethernet (optional wireless bridge required)
OPERATING TEMP.	-10° C~ 40° C (14° F~ 104° F)
PLU PROGRAMMABLE DATA	▪ *Department # : 1~32* ▪ *PLU # : 1~999999* ▪ *Commodity Name : 114 Char* ▪ *Label Format # : 1~999* ▪ *Sales Message # : 1~32* ▪ *Unit : lb, kg* ▪ *Group Code : 0~99* ▪ *Tax Rates : 0~3* ▪ *Country Code : 0~999* ▪ *Sell By Date : 0~999 days* ▪ *Cook By Date : 0~999 days* ▪ *Tare Weight : 0~Capacity* ▪ *Price : 0.00~9999.99* ▪ *Sale Weight : 0~Capacity* ▪ *Sale Price : 0.00~9999.99* ▪ *Net Weight : 0~99999* ▪ *Count : 1~99* ▪ *Sale Count : 0~99* ▪ *UPC : 0~999999* ▪ *Ingredients : 2000 Char* ▪ *Barcode Type/Format* ▪ *Nutritional Information* ▪ *Frequent Shopper/Discount Information*
PLATTER SIZE	**Length:** 403 mm (15.87 in.), **Width:** 260 mm (10.24 in.)
POWER SOURCE	85~240VAC 50/60Hz ±5%
PRINT SPEED	100 mm/sec (4 in./sec)
PRINTER TYPE	DIRECT THERMAL PRINT
SALES PERIODS	Dual totals for daily/monthly or user selectable reporting periods.
SALES REPORT MODES	**Read:** X1/X2 Modes, **Read & Reset:** Z1/Z2 Modes
SALES REPORT TYPES	▪ Daily PLU & Misc. PLU Report ▪ Daily Department Report ▪ Daily Scale Report ▪ Daily Group Report ▪ Daily Hourly Report ▪ Daily Detailed Report ▪ Monthly PLU & Misc. PLU Report ▪ Monthly Department Report ▪ Monthly Scale Report ▪ Monthly Group Report ▪ Monthly Hourly Report ▪ Monthly Detailed Report ▪ Clerk Report
SHIPPING WEIGHT	13 kg (29 lb)
WEIGHING CAPACITY	0~15 x 0.005 lb/ 0~30 x 0.01 lb, 0~30 x 0.01 lb / 30~60 x 0.02 lb (0~3x0.001kg/3~6x0.002kg, 0~6 x 0.002 kg / 0~15 x 0.005 kg, 0~15 x 0.005 kg / 15~30 x 0.01 kg)
WEIGHING RANGE	DUAL RANGE
WEIGHING UNITS	Pound & Kilo push-button selectable.

Note: Specifications are subject to change without notice.

1.3 Dimensions

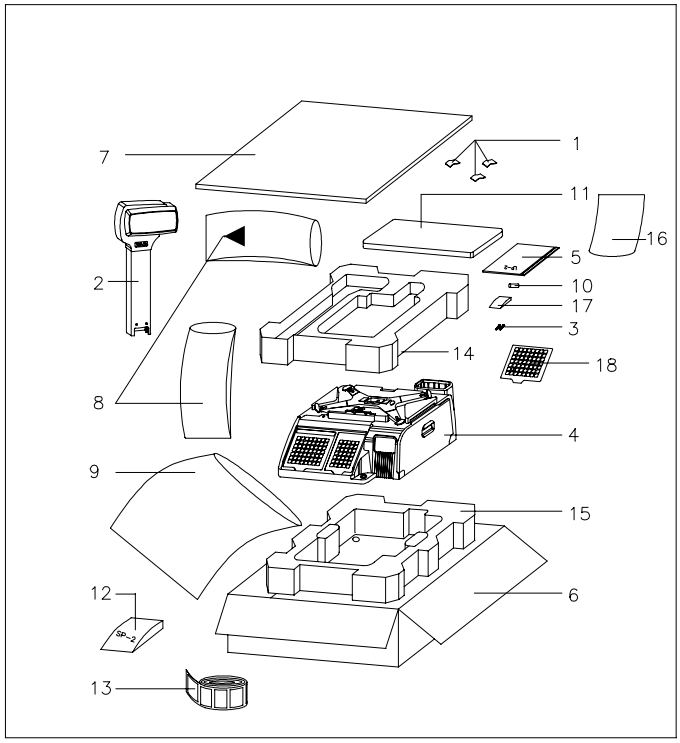


DIMENSIONS

Units: mm / inches

2 Unpacking and Assembly

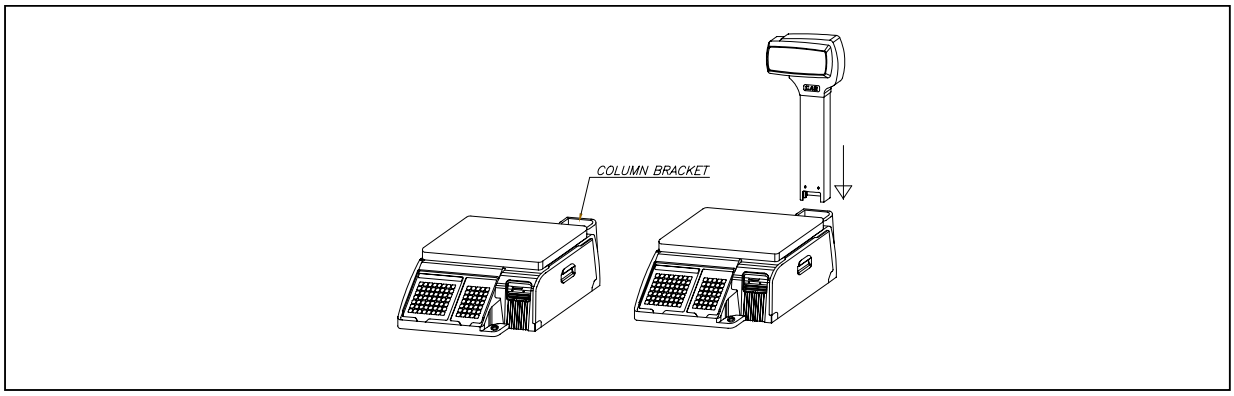
2.1 Unpacking



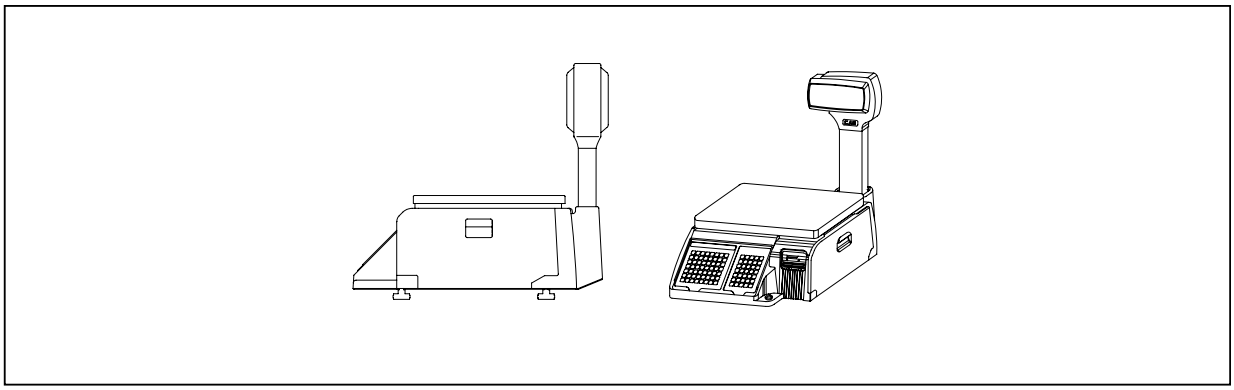
#	Description	QTY
1	Desiccant, silica bag	3
2	LP-2, Display assembly	1
3	LP-2, Display assembly screws	2
4	LP-2, Scale body	1
5	Owner's Manual, LP-2	1
6	Packing box	1
7	Packing lid	1
8	Plastic bag, display column	2
9	Plastic bag, scale	1
10	Fuse	1
11	Platter	1
12	SP-2 software package	1
13	Thermal labels, 1 roll (installed)	1
14	Top form-fitted packing foam	1
15	Bottom form-fitted packing foam	1
16	Manual plastic bag	1
17	Fuse Plastic bag	1
18	PLU pad	1

2.2 Assembly of Display Column

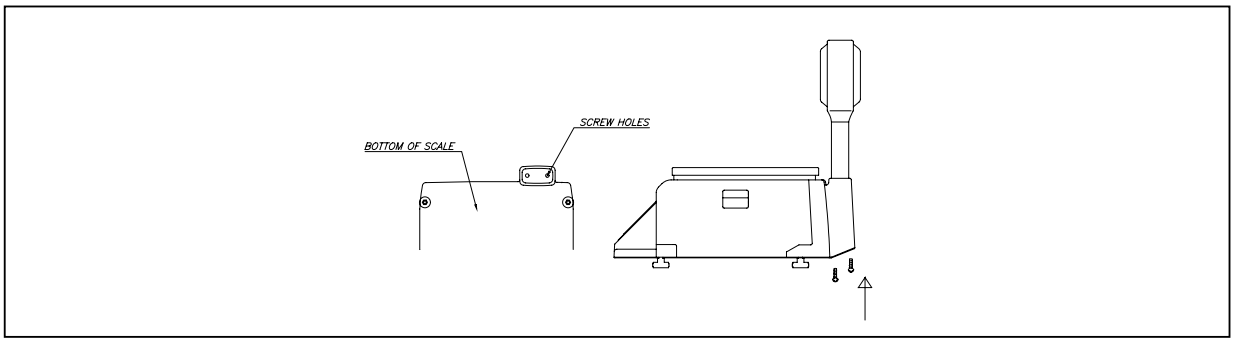
1) You must follow the instructions in this section in order to assemble the Display Assembly properly. To begin the installation, make sure that the scale is unplugged from any electrical source. Your scale body has a display column bracket in the rear that the display column slides into. (See fig.)



2) Hold the display assembly in front of you such that the display assembly forms the figure "7". Next, with the scale's keyboard facing you, insert the display column into the display bracket. When the display column reaches the bottom of the display bracket, you will "feel" the connectors "snap" together. (See fig.)



3) Underneath the display bracket you will find 2 screw holes for the display assembly screws. Insert and fasten the 2 display assembly screws. You are done! (See fig.)



3 Proper Operation

3.1 Environmental Considerations & Safety

1) **Please avoid the following hostile conditions:**

- Temperatures below or exceeding: **-10º C ~ 40º C (14º F ~ 104º F)**
- Excessive vibration
- Wind or fans functioning in direct contact with weighing platform.
- Direct sunlight
- High humidity
- Ungrounded electrical outlet
- Unstable or flimsy surface
- Shared electrical outlet
- Dust or dirt
- Poor ventilation

2) **Environmental Protection:** The scale should be installed in a dry and liquid free environment. When the scale is installed in a high humidity or wet-type environment, be sure to avoid spilling or spraying directly on any surface of the scale.

3) **Personal Safety:** It is extremely important to be aware of personal safety whenever maintaining or operating this equipment. Wherever possible, we have tried to place warning labels and other indicators at the actual location on the equipment where the danger is most likely to occur. However, it is not always possible to foresee all dangerous situations. Warnings and cautions that are necessary for the safe operation of the scale are contained in this manual. Please, make sure to carefully read ALL warnings and cautions before operating the scale.

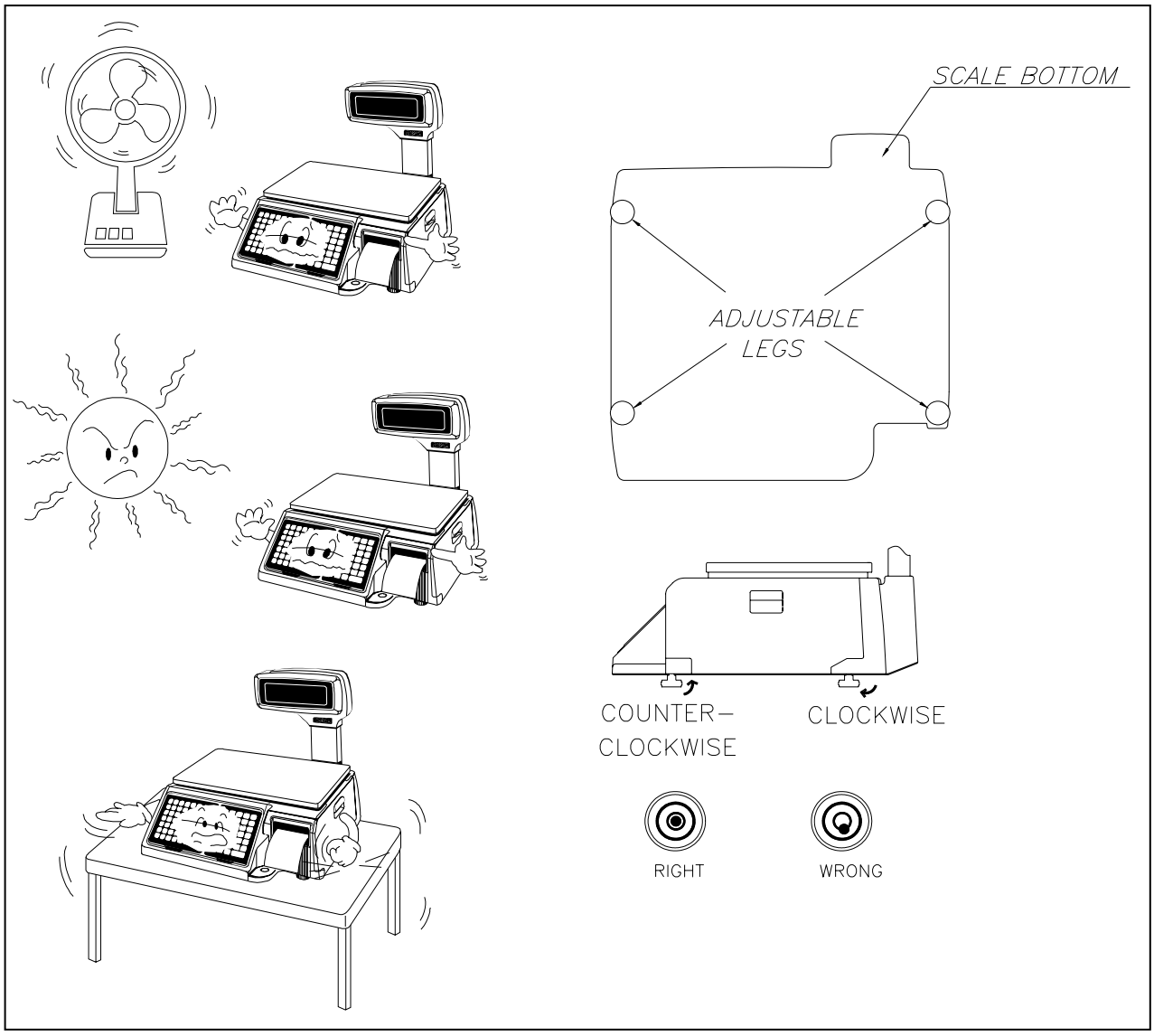
4) **Observe the following safety precautions:**

- Shut the scale **OFF** and unplug the scale whenever you are changing the label roll or whenever working in the printer bay.
- The outlet that the scale is plugged in to should be properly grounded.
- Whenever connecting or disconnecting **ANY** cables from the scale, be sure to hold the cables by the end connector. Failure to do so may cause a short circuit.
- Maintain a static free work area.
- Never use any other equipment on the same line: it should be a dedicated line.
- The outlet used must have the proper voltage ratings.

3.2 Leveling and Location

1) **Location:** This scale must be placed on a flat and stable surface. Please keep the scale away from the direct path of oscillating fans, ventilation systems, or strong drafts as these air disturbances can be picked-up by the scale's very sensitive weighing platform and may cause incorrect weight readings.

2) **Leveling:** If the scale is not properly leveled, please adjust the 4 adjustable legs at the bottom of the scale. Turn the legs clockwise or counterclockwise so as to center the bubble of the leveling gauge inside the indicated circle. Turning the adjustable legs counter-clockwise (viewed from top of scale) will lower that part of the scale. Turning the adjustable legs clockwise (viewed from top of scale) will raise that part of the scale. (See Fig.)



3.3 Power Outlet and Requirements

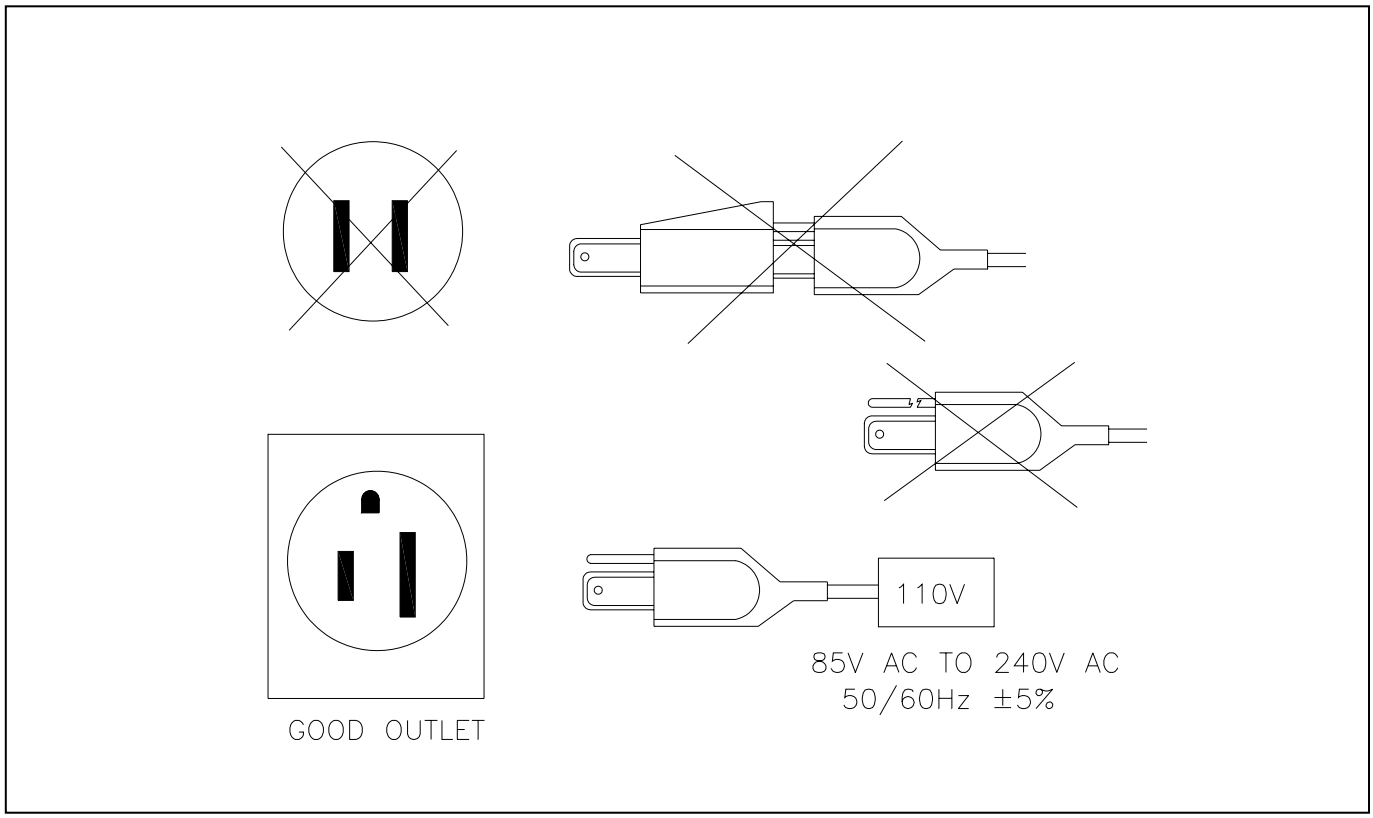
1) The LP-2 is designed to be used almost anywhere in the world! Like the many appliances of today, the LP-2 is designed with an automatically switching power supply. This allows operation when connected to an AC source from 85V to 240V at 50/60Hz with 5% tolerance.

Remember: a switching power supply does not imply that bad, noisy, or improperly wired power lines will be problem free. With that in mind, please make sure that the power lines used for the LP-2 are dedicated lines with no high-noise devices (such as compressors, motors, etc) running on it. Also, make sure that the wiring to the electrical socket is correct. If you are uncertain as to the state of your business' electrical lines, please contact a certified electrician.

2) Once you are sure as to the safety of the electrical line, make sure to ONLY plug the scale into a 3-prong outlet. The third prong is a safety ground and an electrician should properly wire this if it is not correct or if you are unsure. Failure to this CAN result in electrical shock from use of this or any electronic scale.

3) Do not use any 3-prong to 2-prong adapters or break-off the third prong from the LP-2 power cord. The third prong is necessary and must be properly connected.

4) If you have any problems or questions regarding this matter, make sure to contact your authorized dealer or the CAS USA Service Department.



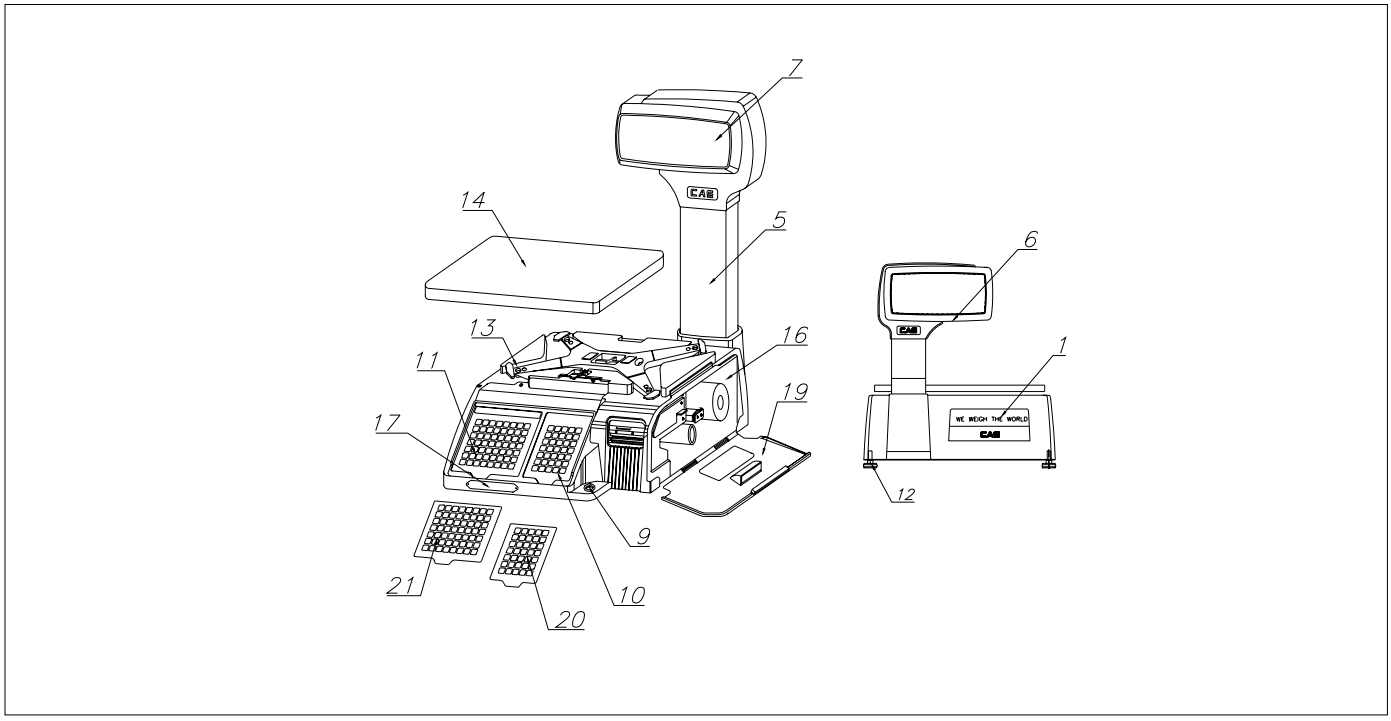
Note: Be sure to check the LP-2's serial number plate on the back of the scale for power specifications.

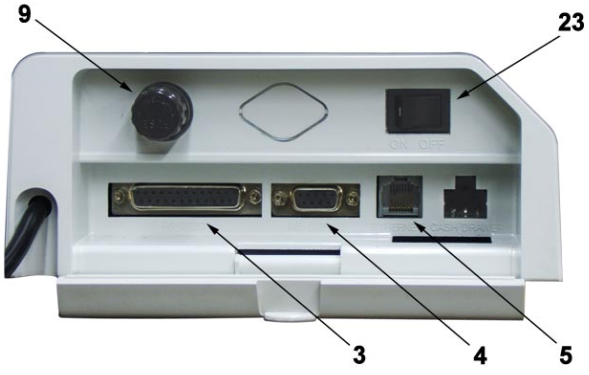
4 Nomenclature

4.1 Scale Overview

1) Pictured below are important scale components and parts that you should be familiar with.

#	Description	#	Description	#	Description
1	Advertisement Insert, rear	9	Fuse Cap	16	Power Switch
2	Wireless Bridge Connector	10	Gauge, Leveling	17	Printer
3	RS-232C 25 Pin Connector	11	Keyboard, Numeric	18	Serial Number Plate
4	RS-232C 9 Pin Connector	12	Keyboard, Speed Keys	19	Side Access Door, Com port
5	Ethernet Connector	13	Leveling Feet	20	Side Access Door, printer
6	Display Column	14	Platform	21	Template Sheet, Numeric
7	Display Window, customer	15	Platter	22	Template Sheet, PLU
8	Display Window, user			23	Power Switch

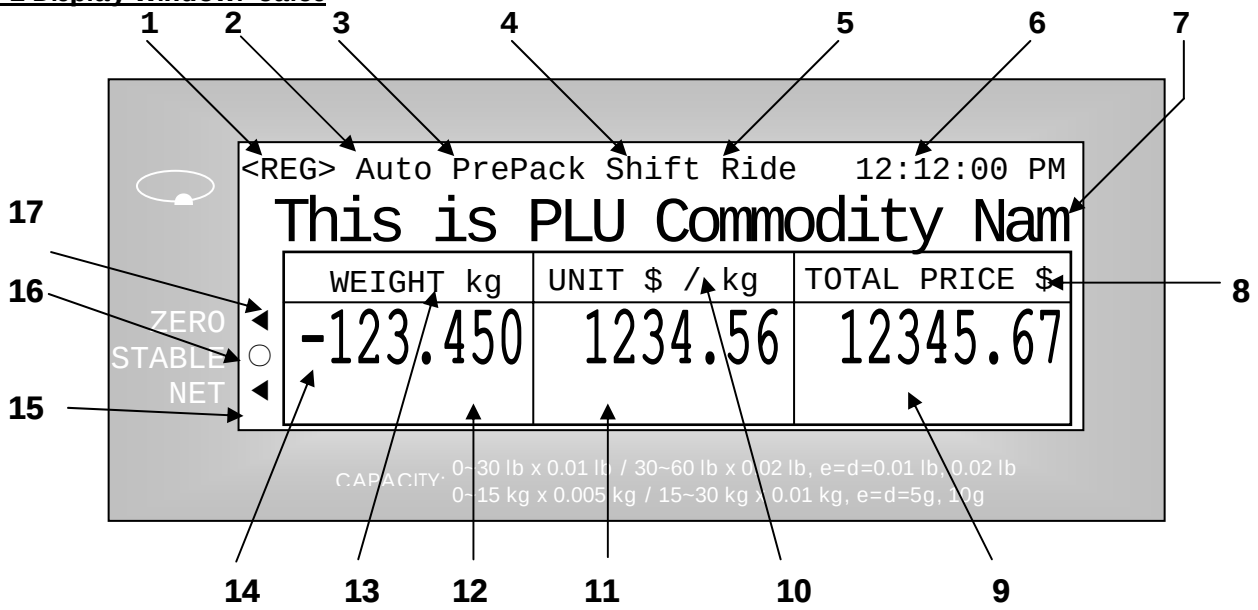




4.2 Display and Indicators

1) **VF Display:** The front and rear displays on the LP-2 are dot matrix vacuum fluorescent displays. They will display all information pertinent to operating the scale.

LP-2 Display Window: Sales



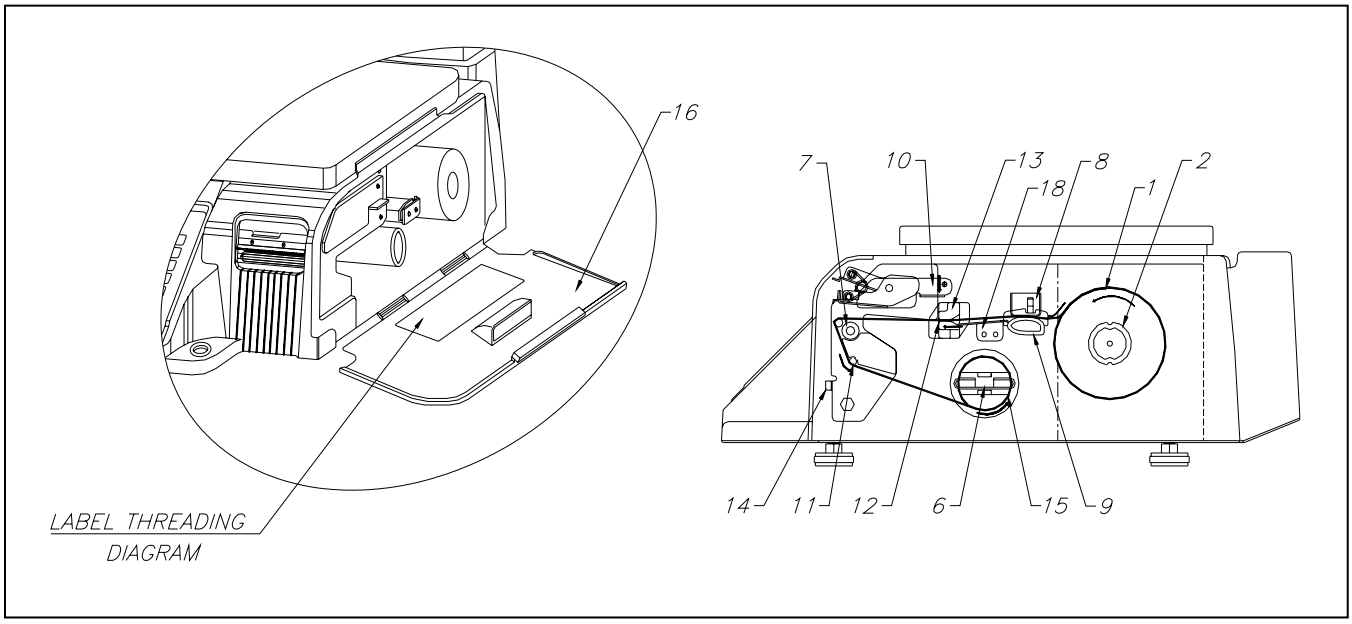
#	Description	Values
1	Mode indicator	REG, RPK, MGR, ADD, PLU, NET[1], STR[2], LOC, SET, X1, X2, Z1, Z2
2	Print Mode indicator	Auto
3	Auto Clearing status indicator	PrePack, Save, *(Blank)*
4	Speed key Shift status indicator	Shift, *(Blank)*
5	Override, Frequent Shopper, & Discount Status	Ride, FSP, DISC, Disc, 1, 2, 3, *(Blank)*
6	Multi-function indicator	*Time, date, scale #, department #, Alt, Temporary Changes, (Blank)*
7	PLU Description line	*First non-blank line of PLU commodity*
8	Total price heading	TOTAL PRICE *and money symbol*
9	Total price indicator	7 digits USA: 0.00~9999.99
10	Unit price heading	UNIT, *money and weigh symbols*
11	Unit price indicator	6 digits USA: 0.00~999.99
12	Weight indicator	5 digits
13	Weight heading	WEIGHT *and weigh symbol*
14	Negative weight indicator	-, *(Blank)*
15	Net-Weight indicator	◀, *(Blank)*
16	Stable weight indicator	○, *(Blank)*
17	Zero weight indicator	◀, *(Blank)*

A Gross Zero indication is reached when the Net-Weight indicator is OFF, the Zero-Weight indicator is ON, the Stable indicator is ON, and the weight reads 0.00 or 0.000.

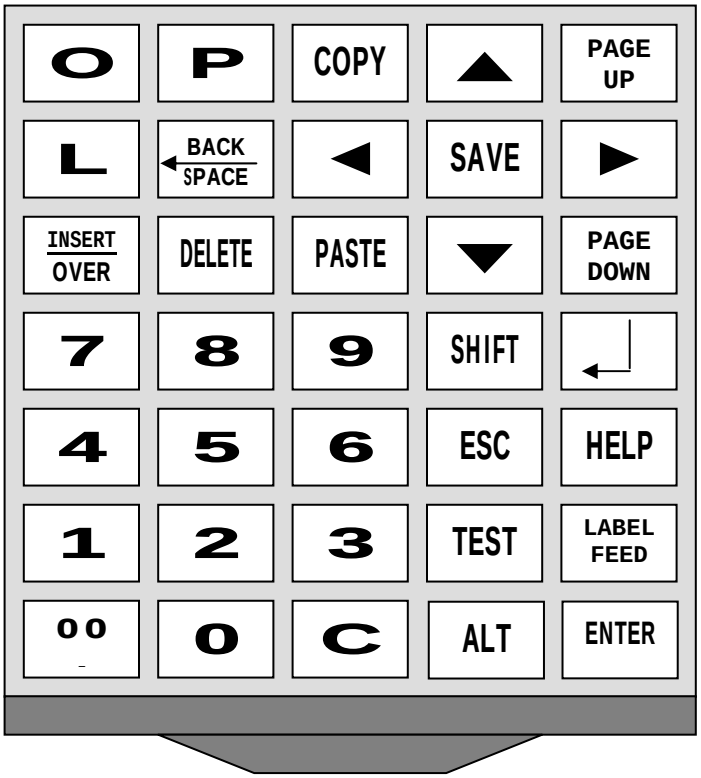
4.3 Printer

1) Pictured below are important printer components and parts that you should be familiar with.

#	Description	#	Description	#	Description
1	Label/Paper Roll	7	Platen	13	Sensor Assembly, Gap
2	Label Roll Spool	8	Pressure plate & width adjuster	14	Sensor Assembly, Peel-Off
3	Lock-Down Tab	9	Pressure shaft	15	Shaft, Pick-Up Motor
4	Paper Cutter	10	Release Lever, TPH	16	Side Access Door, printer
5	Peel-Off Bar	11	Roller, return	17	Thermal Print Head
6	Pick-Up Spool Assembly	12	Brush	18	Paper Guide Plate



4.4 The Program Mode Numeric Key Pad

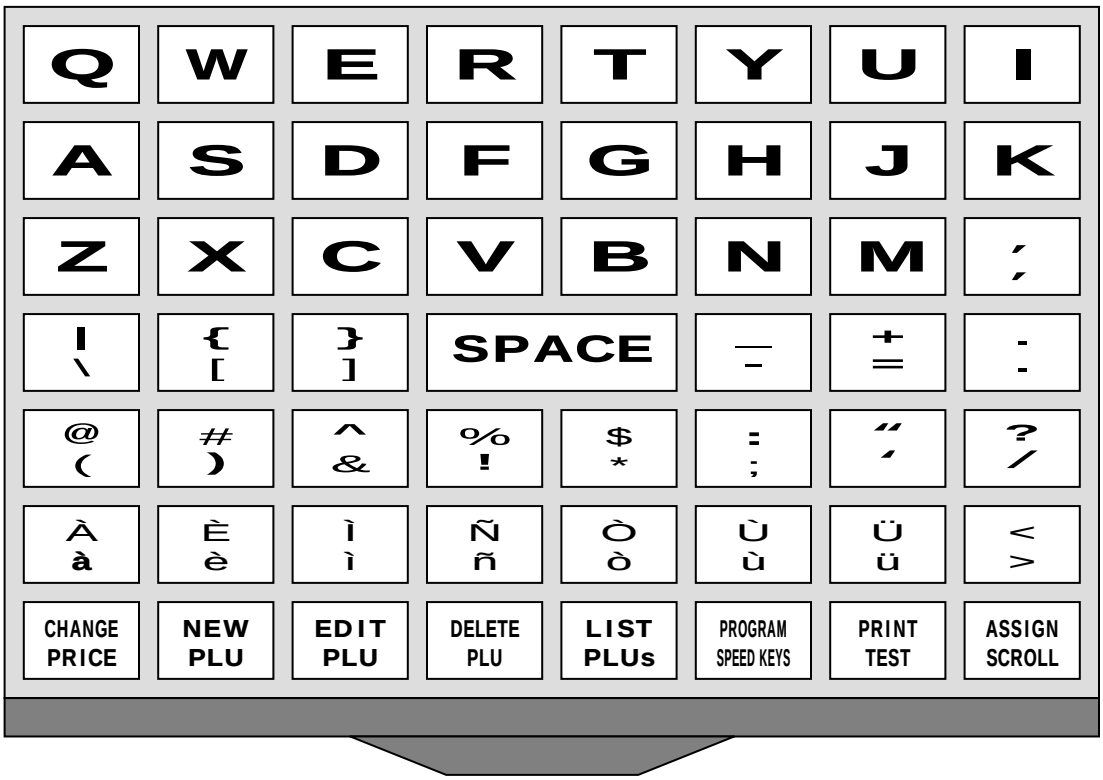


Key	Description
0 ~ 9	Numeric keys. Used to enter programming data.
00 -	Decimal key.
C	Clear key. Used to clear erroneous entries and error conditions. Also stops multi-label printing that is in progress.
COPY	Copy key.
▲ ▼	Up & Down arrow keys. Use to navigate through PGM mode.
◄ ►	Left & Right arrow keys. Use to navigate through PGM mode.
BACK SPACE	Backspace key. Used to backspace and delete text data.

4 Nomenclature

Key	Description
PAGE UP / PAGE DOWN	Page Up & Page Down keys. Use these to navigate 1 screen at a time.
A ~ Z	Alpha keys. Used to type text data.
INSERT / OVER	Insert/overwrite key. Used to toggle between Insert and overwrite modes for text typing.
SAVE	Save key. At any point in programming, this key saves your current data.
ENTER	Enter key. Used as an ENTER key.
DELETE	Delete key. Used to delete text data.
PASTE	Paste key.
ALT	ALT key. This key is used for special key combination presses.
SHIFT	SHIFT key. This is the Caps Lock key. It controls whether you are typing in uppercase .
ESC	Escape key. This key toggles between Main menu and <REG> mode. It also is used to exit programs.
HELP	Help key.
TEST	Test key. Used to print test pattern, preview a scrolling message, and print a PLU verification label.
LABEL FEED	Label Feed key. Use this key to feed labels or paper through printer.
↵	Carriage Return key. This key is used to insert Carriage Returns into the Text 1, 2, & 3 fields of PLU Create/Edit.

4.5 The Program Mode PLU Key Pad



Key	Description
A ~ Z	Alpha keys. Used to type text data.
SPACE	Space bar.
, ~ <	Special Symbol keys.
CHANGE PRICE	PLU Price Change key.
NEW PLU	PLU Create key.
EDIT PLU	PLU Edit key.
DELETE PLU	PLU Delete key.

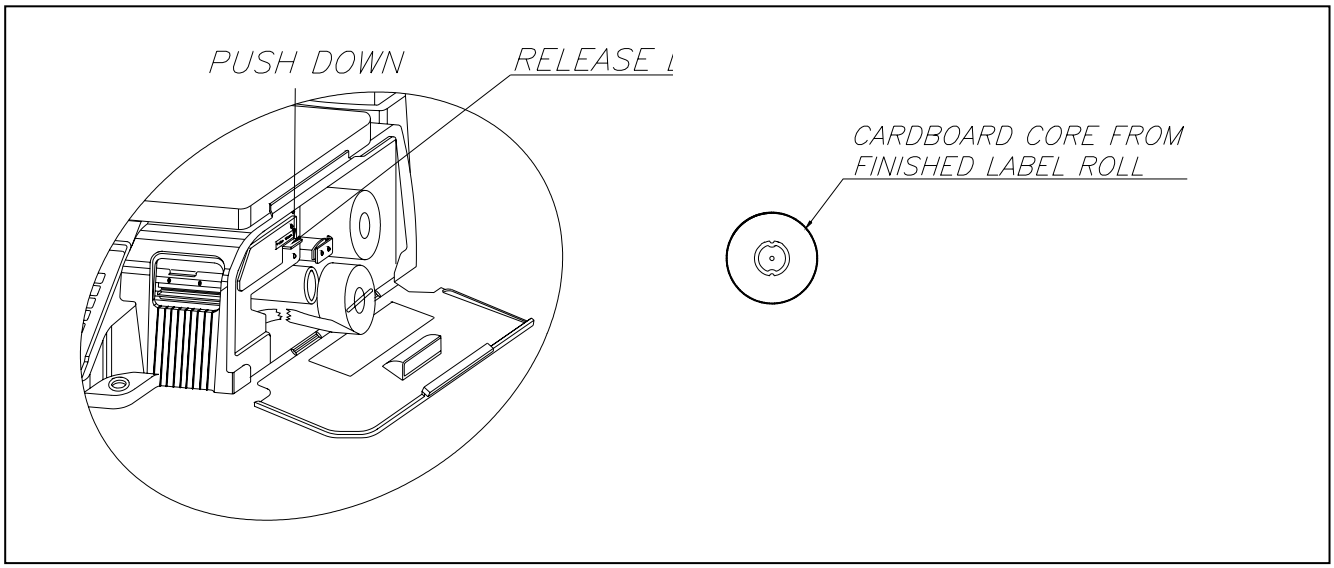
Key	Description
LIST PLUs	PLU Listing key.
PGM SPEED KEYS	Speed Key programming key.
PRINT TEST	Print test key.
ASSIGN SCROLL	Scrolling message assignment key.

5 Getting Started

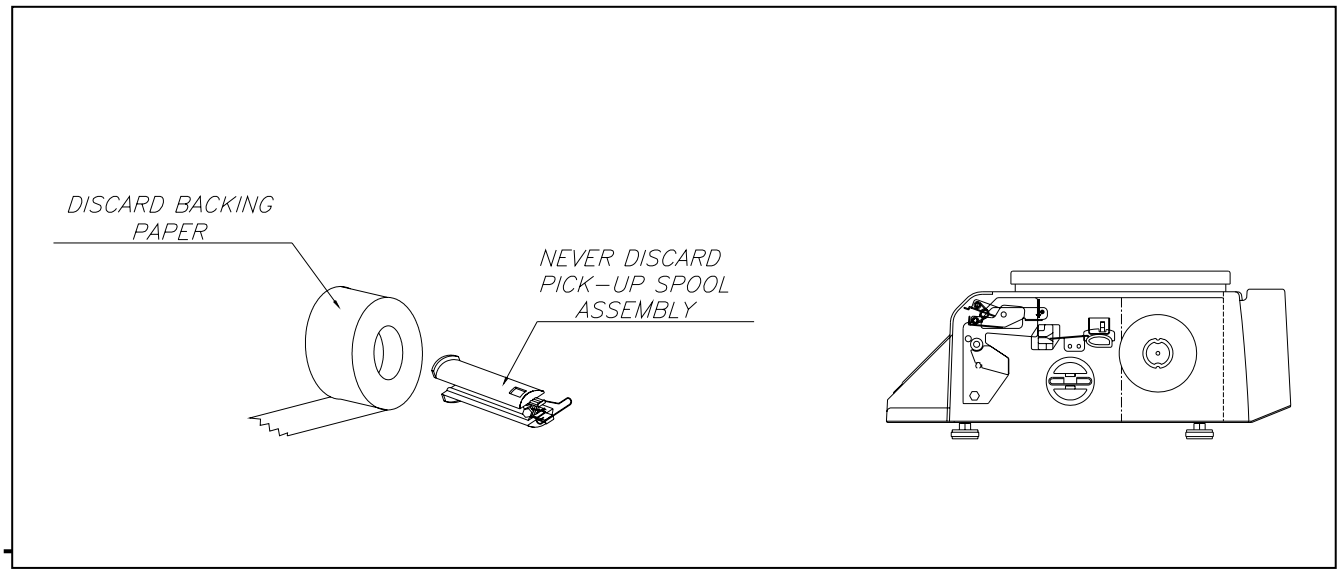
5.1 Installation of the Label Roll

To install the label roll at ANY time you must follow the directions in this section:

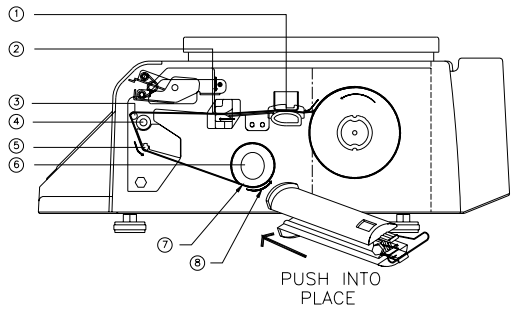
1) Press the **ON/OFF** key and make sure that the display is completely off. Open the printer's side-access panel. As you can see, there is a detailed diagram affixed onto the inside of the side-access panel. Use this diagram (or this manual) for future reference on how to properly install the label roll. (See fig.)



2) Find and remove the Pick-Up Spool assembly and the label-roll Pin. Also, find the Print Head Release Lever and push it in the direction indicated. The print head will be in the "UP" position. If there were any labels previously installed please remove all the collected backing paper from the Pick-Up Spool assembly. The Pick-Up Spool assembly automatically collapses when it is removed from the Pick-Up shaft. This makes the removal of the backing paper very simple. Also remove the cardboard paper roll core if there was a label roll previously installed. (See fig.)



3) Take the new roll of labels and find the ending. Peel-off and discard about one foot (12 inches) of labels from the backing before installing the roll into the scale. Place the label in the scale as shown and thread the backing through the appropriate places. (See fig.)

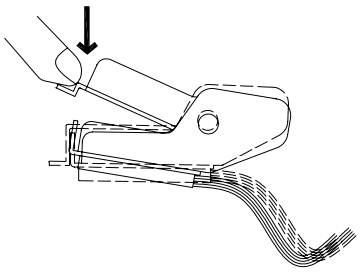


ADJUST AT POINTS 1,2&3 MAKING SURE THAT LABEL IS PUSHED ALL THE WAY TO THE LEFT.

4) Please view the checkpoints on the diagram below as you read these directions to thread the labels.

① Feed the backing paper over the width-adjusting Pressure Shaft lifting the Pressure Plate in order to place the backing between the two making sure that the width adjustment is as exact as possible without bending the backing paper.
② Feed the backing paper inside the slot between the Gap sensor assembly making sure that the labels travel under the Secondary width-adjuster.
③ Make sure that labels are pushed all the way to the left on the Peel-Off bar.
④ Feed the backing over the Rubber Roller and under the Print Head being careful not to touch the underside of the Print Head.
⑤ Continue to feed the backing paper over the Peel-off Bar.
⑥ Continue to feed it under the Return Roller.
⑦ Feed the backing under and around the Pick-Up Shaft.
⑧ Now attach the Pick Up Spool assembly onto the Pick-Up Shaft and turn it slowly counterclockwise in order to tighten the backing paper.

5) Push the Print Head down in order to lock it back in place. You will feel and hear it lock in place. Close the printer access panel and press the **ON/OFF** key. You have completed the label roll installation. (See fig.)



MAKE SURE YOU HAVE DONE THE ADJUSTMENTS AT POINTS 1, 2, AND 3 BEFORE YOU LOCK THE PRINT HEAD.

5.2 Menu and Data Entry System

To Enter Calibration Menu, hold down the ON/OFF key while turning on the power

The CAL Main Menu screen looks like this:

```
                < CAL: MAIN MENU >

1. CALIBRATION          5. NETWORK OPTIONS
2. SYSTEM OPTIONS       6. SELF TEST
3. DIGITAL FILTERING    7. NORMAL FUNCTION
4. PRINTER SETTINGS     8. PRICE OPTIONS
```

Pressing ESC from this menu will take you out of CAL mode and effect all of the changes that you may have made.

Menus & Sub-Menus: Any menu or sub-menu screen that you access can be exited by pressing the ESC key. This will take you back to any previous menu or sub-menu except if you press ESC from the CAL Main Menu. The picture above is an example of a menu. Any menu that you access by selecting options 1 to 5 will be a sub-menu of CAL Main Menu. Any menu that you access from a sub-menu will be a sub menu of that menu, etc. This way you can always backtrack to the CAL Main Menu by pressing the ESC.

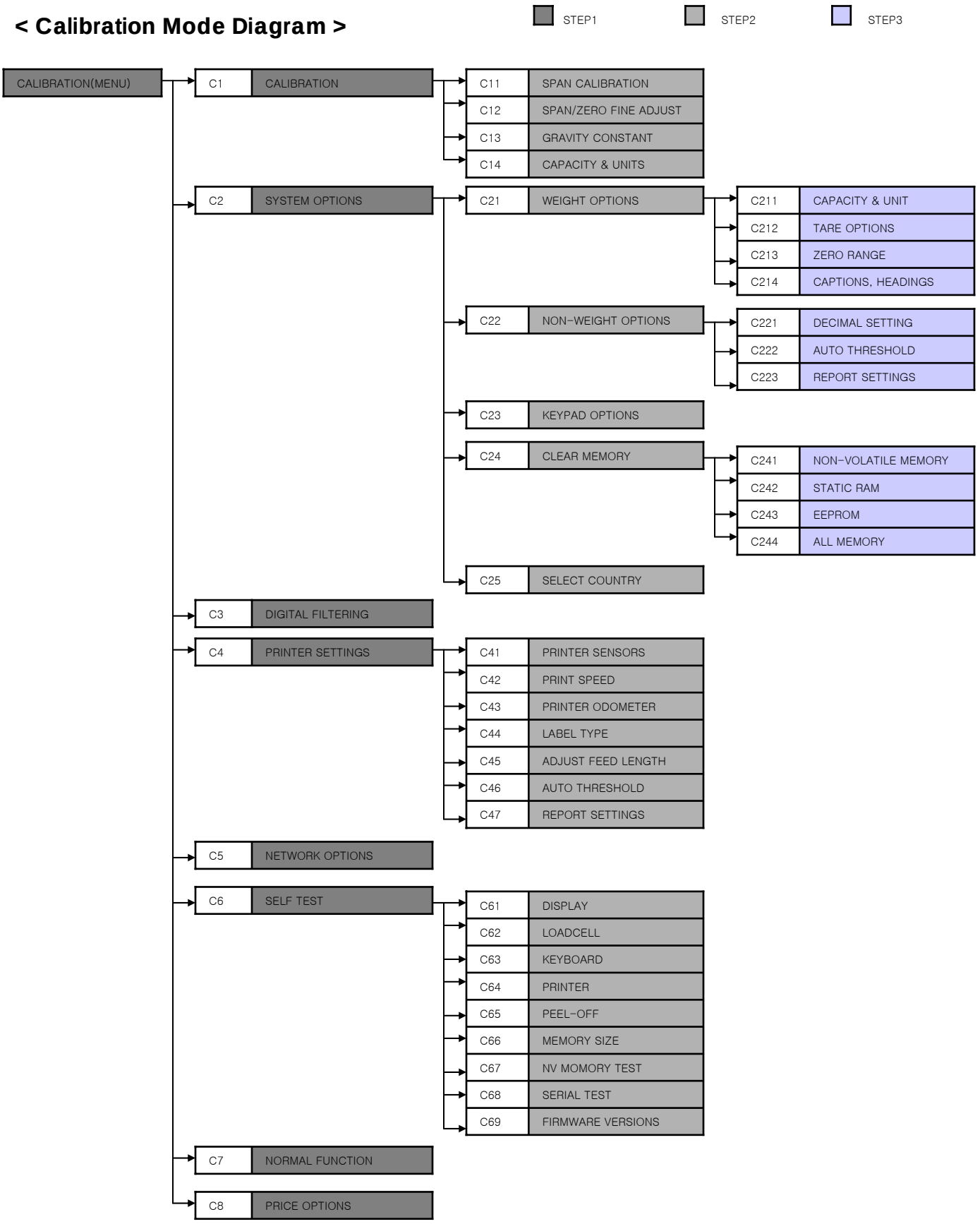
Entry Screens: An example of an entry screen is shown here. If you access an entry screen you can exit it without making changes by pressing the ESC key. This will have the effect of returning to the previous screen, menu, or sub-menu, whatever be the case. If you are on an entry screen you can save & exit that screen by pressing the SAVE key at any point. Pressing the ENTER key while the cursor is on the last field (bottom) of an entry screen will have the same effect as pressing the SAVE key.

```
                                        NUMERIC
          < CAL: SAMPLE ENTRY SCREEN >

Unit                :[1] 0)kg       1)lb

Label Format (1-999):[123] LST #8020 Ingredient
Unit Price          :$[  0.99] / lb
```

Fields (on-screen): Entry screens have fields that contain data that you can modify. This data is always contained in brackets: **[123456]** or **[ABCDEDG]**. To select a field, simply use the ↑ or ↓ keys to move the cursor to that field.

- A field's name followed by a colon will usually appear on the left side of the bracketed data. In the Sample Entry Screen above, the word "Unit :" appears to the left of the brackets containing the value 1. To the right of the Unit field is the options that you may select: 0 is kilograms & 1 is pounds. These are the only two acceptable values for this field. Any values selected outside that range will automatically replaced with values within that range.
- The Label Format Field is slightly different. This field indicates its range in parenthesis listed after the field's name. In this case it is 1 to 999. Also, the data that appears to the right of the entry field brackets changes dynamically as you type. For example, if the cursor is on the Label Format field and you press the CLEAR key you will see that the format number will change to 1 and the name of label 1 will appear on the right side of the brackets. If you press the 1 key & then the 2 key, then the name of label 12 will appear. If you now press the 3 key then the name of label 123 will appear.
- The Unit Price field tells you that the values are in 2 decimal place format and that this is a $ value. The right side shows " / lb" which means that this is a $ per pound field.

< Calibration Mode Diagram >



6 Calibration Mode

6.1 Entering Calibration Mode

1. Make sure that the Main Power is OFF (switch on left side of scale.)
2. Press and hold down the ON/OFF key on the upper right corner of the keyboard.
3. While you are holding down the ON/OFF key, turn the Main power ON.
4. Once you here a series of "chirps" release the ON/OFF key.
5. After a few seconds the scale will be in CAL mode.

The CAL Main Menu screen will appear as follows:

Pressing ESC from this menu will take you out of CAL mode and affect all of the changes that you may have made.

```
                < CAL: MAIN MENU >

1. CALIBRATION          5. NETWORK OPTIONS
2. SYSTEM OPTIONS       6. SELF TEST
3. DIGITAL FILTERING    7. NORMAL FUNCTION
4. PRINTER SETTINGS     8. PRICE OPTIONS
```

NOTE: Only CAS trained personnel should attempt to make changes in CAL mode. If you are not trained to work on this equipment, please contact the CAS (USA) Service Department for assistance. Non-qualified personnel attempting service the CAS LP-2, risk void the scale's warrantee.

ALL OF THE SCREENS TO FOLLOW SHOW USA DEFAULT SETTINGS.

6.1A Entering Calibration Mode (alternate method)

Some units have a working calibration switch located on the top of the upper case, underneath the platter. Although USA models may have CAL switches in this location, these switches do not have any effect. If your scale has a working CAL switch, then you must seal the scale physically.

7 Calibrating the Scale

7.1 Calibration Menu

Once at the CAL Main Menu screen, press the 1 key.

```
                < CAL: MAIN MENU >

1. CALIBRATION          5. NETWORK OPTIONS
2. SYSTEM OPTIONS       6. SELF TEST
3. DIGITAL FILTERING    7. NORMAL FUNCTION
4. PRINTER SETTINGS     8. PRICE OPTIONS
```

The Calibration Menu screen will appear as follows:

```
            < CAL: CALIBRATION MENU >

          1. SPAN CALIBRATION (60 lb)
          2. SPAN/ZERO FINE ADJUST
          3. GRAVITY CONSTANT
          4. CAPACITY & UNITS
```

Span Calibration: Requires the use of weights. The display will indicate the amount of weight that you will need. LP-2 VER 1.03 or higher USA models will need 60 lbs. to calibrate. You will need the full capacity. If kilo weights are required the scale will display 30 kg.

Span Fine Adjust: Does not require weights but they are recommended for checking the Fine Adjustment.

Gravity Constant: This is a value that causes automatic compensation for different altitudes. If the scale is calibrated in NY and shipped to CA, you can simply enter the Gravity Constant for CA and the scale will be calibrated for CA even though it was calibrated in NY.

CAPACITY & UNITS: **Same as the 8.1.1. Refer to that.**

7.2 Span Calibration

Once at the CAL Main Menu screen, press the 1 key. The Calibration Menu screen will appear. Press the 1 key from the Calibration menu screen to select Span Calibration. The first Span Calibration screen will appear as follows:

```
     ZERO CALIBRATION

     1. Remove all weight from the platter.
     2. Press ENTER when ready.

          0        3569
```

Once you press the ENTER key, the scale checks the zero weight and stability. If the scale is unstable or there is excessive weight on the platter the ZERO Calibration will fail and will then be repeated. If all is well the second Span calibration screen will appear as follows:

```
     SPAN CALIBRATION

     1. Place 60 lb on the platter.
     2. Press ENTER when ready.

          0        3569
```

Place 60 lbs. on the platter. Once the weight is stable, press ENTER key. Then the scale checks stability & the span weight. If the SPAN calibration is successful, the Calibration Passed screen will be displayed temporarily and then return to the Calibration screen.

```
Calibration Passed!
```

If there is a problem, you will get the "Calibration Failed!" message and will go back to the Calibration Menu screen. If you get this message, please check the following:

- You are using 60 lb of certified weights.
- The scale has prompted you for 60 lb and not 30 kg or any other capacity.
- The weight/counts were stable throughout the calibration process (± 5 count Δ).
- There is nothing obstructing the platter & the platter is mounted properly onto the platform.
- You are using the correct platter and/or correct dead load (IZR* is 10% of capacity.)
- Try process again 2 more times always following the onscreen directions.

❖ If problems persist, you may have a damaged: **A/D Converter (90%).**
❖ If problems persist, you may have a damaged: **Load Cell (5%).**
❖ Contact the CAS Service Department: **Other (5%).**

NOTE: Any changes made here will affect the NTEP Audit Trail counters (CAL counter only.)
***IZR:** Initial Zero Range allows ±10%-of-Capacity from Calibrated Zero point.

7.3 Span/Zero Fine Adjust

Once at the CAL Main Menu screen, press the 2 key. The display will read "Checking Load Cell..." and then the Span Fine Adjust screen will appear as follows:

```
                                        NUMERIC
        < CAL: SPAN/ZERO FINE ADJUST >

SPAN:  [ 74062]
ZERO:  [  3566]
WEIGHT:   0.000 lb
TEST = Weighing Mode
SAVE = SAVE,            ESC= UNDO CHANGES
```

WEIGHT: The Weight display will be shown in calibrated units (lb if you calibrated in lb, kg if you calibrated in kg.) The weight is in 1/60,000 resolution and updates a bit more slowly than in REG mode. You can use this mode to verify different weigh points. Remember that the REG mode weight display will round up to the nearest 1/3000 division.

SPAN: The Span value is the measurement in counts of the full load. Increasing the span will display a lesser weight for a given mass; decreasing the span will display a greater weight for the same mass. After you change the span value, while the cursor is on the Span field, you need to press the ENTER key twice in order to refresh the weight display.

ZERO: The Zero value is the current Zero value for the scale. It should be ±10% from the calibrated zero; however, if you change and save this value, it becomes the calibrated zero value. While the cursor is on the Zero field, you can change this value but, you must press the ENTER key twice for it to take effect. Lowering the value will lower the weight; increasing the value will increase the weight. While the cursor is on the Zero field, can also press the TEST key to bring the weight to 0.000. This also has the effect of changing the Zero value.

If you wish to save your changes, press the SAVE key at any time or the ENTER key while the cursor is on the last field of the screen. If you wish to undo your changes, press the ESC key at anytime. Once you leave this screen, the display will return to the previous screen (Calibration Menu.)

NOTE: Any changes made here will affect the NTEP Audit Trail counters (CAL counter only.)

7.4 Gravity Constant

Once at the Main menu screen, press the 3 key. The Gravity Constants screen will appear:

```
                                        NUMERIC
          < GRAVITY CONSTANTS >

       At Calibration Place :   9.7994
       At Using Place       :  [9.8024]
```

If the Calibration Place & the Using Place values are the same, it means that the scale was calibrated at that constant's corresponding location(s) and thus no compensation takes place. If these are different, this implies that the scale was calibrated at some other location than the Using Place value. In this case compensation takes place.

The purpose of this function is to allow you to calibrate the scale in one location, say New York, and then ship it to another location, say Panama, where you change the Using Place value from 9.8024 to 9.7814. This will compensate for the difference in gravity at the 2 locations and so you need not recalibrate the scale. Press ENTER or SAVE to save changes or ESC to quit without changing.

Use the following table to determine the proper G-Constant for your area.

Country	City	G-Constant	Country	City	G-Constant
Argentina	Buenos Aires	9.7979	Mexico	Mexico City	9.7799
Australia	Sydney	9.7979	Morocco	Rabat	9.7964
Austria	Vienna	9.8099	Netherlands	Amsterdam	9.8129
Belgium	Brussels	9.8114	New Zealand	Wellington	9.8039
Belize	Manamah	9.7904	Norway	Oslo	9.8189
Bolivia	La Paz	9.7844	Panama	Panama City	9.7814
Brazil	Brasilia	9.7889	Peru	Lima	9.7829
Canada	Montreal	9.8069	Philippines	Manila	9.7844
	Ottawa	9.8069	Poland	Swider	9.8159
	Toronto	9.8054	Portugal	Lisbon	9.8009
	Vancouver	9.8099	Rumania	Bucharest	9.8054
Check Republic	Prague	9.8114	Saudi Arabia	Riyad	9.7904
Chile	Santiago	9.7979	Scotland	Stockholm	9.8189
China	Hong Kong	9.8099	Singapore	Singapore	9.7814
Colombia	Bogota	9.7799	South Africa	Johannesburg	9.7919
Costa Rica	San Jose	9.7829	Spain	Madrid	9.8024
Cypress	Nicosia	9.7979	Switzerland	Bern	9.8084

Denmark	Copenhagen	9.8159	Taiwan	Taipei	9.7904
Ecuador	Quito	9.7724	Tunisia	Tunis	9.7799
Finland	Helsinki	9.8189	Turley	Ankara	9.8024
Germany	Dusseldorf	9.8129	Uruguay	Montevideo	9.7964
Great Britain	London	9.8144	USA	Anchorage	9.8189
Greece	Athens	9.8009		Atlanta	9.7964
Guatemala	Guatemala City	9.7844		Boston	9.8039
Hungary	Budapest	9.8069		Chicago	9.8024
Indonesia	Djakarta	9.7814		Dallas	9.7949
Iraq	Baghdad	9.7964		Detroit	9.8039
Japan	Mishima	9.7979		Los Angeles	9.7979
Korea	Seoul	9.7994		New York	9.8024
Kuwait	Kuwait	9.7919		Philadelphia	9.8024
Lebanon	Beirut	9.7964		San Francisco	9.7994
Mauritius	Port Louis	9.7859	Venezuela	Caracas	9.7829

NOTE: The G-Constant is the acceleration of gravity in meters per second per second.
NOTE: Any changes made here will affect the NTEP Audit Trail counters (CAL counter only.)

8 System Options

8.1 Weight Options

Once at the CAL Main menu screen, press the 2 key. The System Options Menu screen will appear as follows. At the System Options Menu screen, press the 1 key for Weight Options.

```
< CAL: SYSTEM OPTIONS >

1. WEIGHT OPTIONS
2. NON-WEIGHT OPTIONS
3. KEYPAD OPTIONS
4. CLEAR MEMORY
5. SELECT COUNTRY
```

The Weight Options Menu screen will appear as follows:

```
< CAL: WEIGHT OPTIONS >

1. CAPCITY & UNITS
2. TARE OPTIONS
3. ZERO RANGE
4. CAPTIONS & HEADINGS
```

8.1.1 Capacity & Units

Once at the Weight Options Menu screen, press the 1 key for Capacity & Units. The Capacity & Units screen will then appear as follows:

```
                                    NUMERIC
          < CAL: CAPACITY & UNITS >

Unit                :[1] 0)kg       1)lb
Capacity            :[1] 0)15   1)30   2)60
Weigh Range         :[1] 0)Single   1)Dual
```

Unit: This determines the unit that you will use to calibrate the scale and it is the default unit that the s-cale will turn ON to when it goes into Sales mode. *If you change this value without re-calibrating the scale, you will get a "Calibrated Mass Error" every time you power ON the scale.*

Capacity: This determines the capacity for the scale. The LP-2 VER 1.03-USA is available in 60 lb/ 30 kg only; however, the scale is programmable for 30 lb, 60 lb, 15 kg, or 30 kg.

Weigh Range: This determines the range for the scale & thus determines the minimum displayed divisions. *See chart below.*

Capacity	Weight Range (Single)	Weight Range (Dual)
6 kg	0.000 kg ~ 6.000 kg X 0.002 kg (2 g)	0.000 kg ~ 2.999 kg X 0.001 kg (1 g) 3.000 kg ~ 6.000 kg X 0.002 kg (2 g)
15 kg	0.000 kg ~ 15.000 kg X 0.005 kg (5 g)	0.000 kg ~ 5.998 kg X 0.002 kg (2 g) 6.000 kg ~ 15.000 kg X 0.005 kg (5 g)
30 kg	0.00 kg ~ 30.00 kg X 0.01 kg (10 g)	0.000 kg ~ 14.995 kg X 0.005 kg (5 g) 15.000 kg ~ 30.00 kg X 0.01 kg (10 g)
15 lb	0.00 lb ~ 15.00 lb X 0.005 lb	0.000 lb ~ 7.498 lb X 0.002 lb 7.500 lb ~ 15.000 lb X 0.005 lb
30 lb	0.00 lb ~ 30.00 lb X 0.01 lb	0.000 lb ~ 14.995 lb X 0.005 lb 15.000 lb ~ 30.00 lb X 0.01 lb
60 lb	0.00 lb ~ 60.00 lb X 0.02 lb	0.00 lb ~ 29.99 lb X 0.01 lb 30.00 lb ~ 60.00 lb X 0.02 lb

NOTE: Any changes made here will affect the NTEP Audit Trail counters (OPT counter only.)

8.1.2 Tare Options

Once at the Weight Options Menu screen, press the 2 key for Tare Options. The Tare Options screen will appear as follows. This is what the screen looks like when the cursor is on the Tare field.

```
                                    NUMERIC
            < CAL: TARE OPTIONS >

Tare              :[0]      0. Full Tare
Tare Mode         :[0]      1. Half Tare
                            2. Custom Tare
```

Tare: This determines the Tare's maximum capacity.

- Full tare will allow you tare up to the max capacity of the scale.
- Half tare will allow you to tare up to lower value of the upper range (see chart on previous page.)
- Custom tare allows you to specify the maximum tare value.

Tare Mode: This determines how the Tare operates. The screen will change as follows when the cursor is on the Tare Mode field.

```
                                    NUMERIC
            < CAL: TARE OPTIONS >

Tare              :[0]      0. One Time Tare
Tare Mode         :[0]      1. Successive Tare
```

- One time tare allows you to enter a tare once (manual or platter tare) and then you must clear that tare before you can enter a new one.
- Successive tare allows you to combine platter tares. For example, you can place 5 lb on the scale and press TARE; put another 5 lb and press TARE; put another 5 lb and press TARE to get a combined tare of 15 lb.

Maximum Tare: This field only comes up when the Tare field is set to 2 and you press ENTER or ↓ from the Tare Mode field. The screen appears as follows. The Maximum tare determines the Tare's maximum capacity.

```
                                    NUMERIC
            < CAL: TARE OPTIONS >

  Tare            :[2]
  Tare Mode       :[0]
  Maximum Tare    :[60.000]  lb
```

NOTE: Any changes made here will affect the NTEP Audit Trail counters (OPT counter only.)

8.1.3 Zero Range

Once at the Weight Options Menu screen, press the 3 key for Zero Range. The Zero Range screen will then appear.

```
                                    NUMERIC
             < CAL: ZERO RANGE >

        Initial Zero Range(+,-)  :[10]%
        ReZero Range      (+,-)  :[5]%
```

Initial Zero Range: This is an allowable range from Calibrated Zero that the scale will go to zero from at start up. The range is **CZP ± ((CAPACITY x IZR) / 100) x**

CPD, where CZP = Calibrated Zero Point in counts, IZR is the Initial Zero Range value, & CPD is a conversion factor called Counts Per Division.

ReZero Range: This is an allowable range from Initial Zero that the scale will go to zero from when you press the ZERO key. The range is **IZ ± ((CAPACITY x RZR) / 100) x CPD**, where IZ = Initial Zero Point in counts, RZR is the ReZero Range value, & CPD is a conversion factor called Counts Per Division.

NOTE: Any changes made here will affect the NTEP Audit Trail counters (OPT counter only.)

8.1.4 Captions & Headings

For changes to Captions or Headings please consult your Authorized CAS Dealer. These changes are only possible through Service Programming:

```
< SET: CAPTIONS & HEADINGS >

1.LABEL CAPTIONS
2.DISPLAY HEADINGS
```

The Label Captions options allow you to specify some of the Captions that get printed. An example of a Caption is "TOTAL PRICE $" which usually appears above the Total Price box on some formats. These need to change dynamically when toggling between weighing units (lb/kg).

The Display Headings options allow you to specify some of the wording that appears on the REG/MGR/RPK display. These include "TOTAL PRICE $" , "PRICE lb/$", etc. These too need to change dynamically when toggling between weighing units (lb/kg).

The Label Captions screens are very similar varying only in the defaulting data.

```
                              INS/CAPS
(1/4)< SET: LABEL CAPTIONS CURRENCY >

       Total Price: [TOTAL PRICE $      ]
    By-Count Price: [QTY / $            ]
By-Weight lb Price: [PRICE $/lb         ]
By-Weight kg Price: [PRICE $/kg         ]
           Tare lb: [TARE lb            ]
```

```
                              INS/CAPS
(2/4)< SET: LABEL CAPTIONS CURRENCY >

           Tare kg: [TARE kg            ]
    Discount Price: [TAX $              ]
     Regular Price: [REG PRICE          ]
        Tax Price: [TAX $               ]
   Packed on Date: [PACKED ON           ]
```

```
                              INS/CAPS
(3/4)< SET: LABEL CAPTIONS CURRENCY >

      Sell By Date: [SELL BY           ]
     Cook By Date: [COOK BY            ]
            Count: [COUNT              ]
   FSP Unit Price: [SAVE UNIT PRICE   ]
   FSP Total Price: [SAVE TOTAL PRICE  ]
```

```
                              INS/CAPS
(4/4)< SET: LABEL CAPTIONS CURRENCY >

        FSP Saving: [SAVING             ]
    FSP Price Text: [SAVE MORE PRICE    ]
   FSP Saving Text: [YOU SAVE           ]
```

Remember that you can press **SAVE** at any time in order to save the current screen contents and return to the previous menu. The **ESC** key exits and returns to the previous menu.

The Display Headings screens are very similar; however, Display -Headings has one more screen than

```
                                INS/CAPS
(1/2)< SET: DISPLAY HEADINGS >

        Currency Symbol: [$  ]
        Total Price Box: [TOTAL PRICE $]
By-Weight lb Unit Price: [UNIT $ / lb]
By-Weight kg Unit Price: [UNIT $ / kg]
    By-Count Unit Price: [ PCS / $   ]
```

Currency 1 screen 1 of 2.

```
                                INS/CAPS
(2/2)< SET: DISPLAY HEADINGS >

              Weight lb: [WEIGHT  lb ]
              Weight kg: [WEIGHT  kg ]
          Quantity Sold: [QTY ]
    By-Count Net Weight: [Net Wt. ]
```

Currency 1 screen 2 of 2.

8.2 Non-Weight Options

Once at the CAL Main menu screen, press the 2 key. The System Options Menu screen will appear as follows. At the System Options Menu screen, press the 2 key for Non-Weight Options.

```
          < CAL: SYSTEM OPTIONS >

        1. WEIGHT OPTIONS
        2. NON-WEIGHT OPTIONS
        3. KEYPAD OPTIONS
        4. CLEAR MEMORY
        5. SELECT COUNTRY
```

The Non-Weight Options Menu screen will appear as follows:

```
         < CAL: NON-WEIGHT OPTIONS >

          1. DECIMAL PLACE SETTING
          2. AUTO PRINT THRESHOLD
          3. REPORT SETTINGS
```

8.2.1 Decimal Place Setting

You can determine the decimal place setting.

```
                                    NUMERIC
       < CAL: DECIMAL PLACE SETTINGS >

Price Decimal Place      (0~4) :[2] 0.00
Decimal Symbol           (0~1) :[1] 0.00

Total Price Max Digits   (0~1) :[0] 6, 7
```

8.2.2 Auto Print Threshold

Once at the Non-Weight Options Menu screen, press the 3 key for Auto Print Threshold. The Auto Print Threshold screen will then appear as follows:

Min Weight: This determines how much the weight must deviate in order for PRE PACK to automatically print a label. This value is in divisions so on a 60 lb x 0.02lb Single range LP-2, a value of 2 will cause an auto print if the weight deviates by **(2 X 0.02 lb)** = 0.04 lb. Remember, it must deviate by this much weight and then stabilize before it can print.

```
                                        NUMERIC
       < CAL: AUTO PRINT THRESHOLD >

Minimum Weight for Auto Print: [ 2]div
```

8.2.3 Report Settings

Once at the Non-Weight Options Menu screen, press the 4 key for Report Settings. The Report Settings screen will then appear as follows:

```
                                    NUMERIC
          < CAL: REPORT SETTINGS >

Print Null Sales?              (Y/N) :[N]
Disable Takeup Motor?          (Y/N) :[Y]
Auto Print Verify Labels?      (Y/N) :[N]
```

Print Null Sales: This determines whether all PLUs get reported (Y) or only active PLUs with sales get reported on (N). If you have 1000 PLUs programmed but only used 200 of them you might not want to get a report with 800 lines of zero sales and then 200 lines of active sales.

Disable Takeup Motor: If Y then when you print sales reports the backing paper will not be taken up. If N then when sales reports are printed the backing paper is collected. **Remember, this feature is only active for Label Type 0 & 1. Label Type 2 always has the take up motor inactive.**

8.3 Keypad Options

Once at the CAL Main menu screen, press the 2 key. The System Options Menu screen will appear as follows. At the System Options Menu screen, press the 3 key for Keypad Options & the Keypad Options screen will appear.

```
          < CAL: SYSTEM OPTIONS >

        1. WEIGHT OPTIONS
        2. NON-WEIGHT OPTIONS
        3. KEYPAD OPTIONS
        4. CLEAR MEMORY
        5. SELECT COUNTRY
```

The Keypad Options screen will appear as follows: This screen has 2 pages, as you can see from the 1/2 page indicator at the top left of the screen.

```
                                    INS/CAPS
(1/2)     < CAL: KEYPAD OPTIONS >

LB/KG Key Allowed             ? (Y/N) :[Y]
1/2 & 1/4 Keys Allowed        ? (Y/N) :[Y]
100g Key Allowed              ? (Y/N) :[Y]
ADD Key Allowed               ? (Y/N) :[Y]
TARE Key Allowed              ? (Y/N) :[Y]
```

The second screen looks like this:

```
                                    INS/CAPS
(2/2)     < CAL: KEYPAD OPTIONS >

Numeric Tare Allowed          ? (Y/N) :[Y]
Double Zero Key Allowed       ? (Y/N) :[Y]
Misc PLU Keys Allowed         ? (Y/N) :[Y]
PLU Unit Conversion Allowed   ? (Y/N) :[Y]
```

lb/kg key: If you set this to Y then the lb/kg key will work in sales mode and allow you to switch between lb & kg modes. If you set this to N then you will not be allowed to switch between lb & kg modes.

Remember the scale will only work in the calibrated unit when this option is N. Also, PLUs programmed for a unit other than the calibrated unit will not be accessible when this option is N. This means that if this option is set to N and the scale was calibrated in kg, then only kg PLUs will work and the scale will only weigh in kg.

1/2, 1/4, & 100g keys: If this is set to Y then these keys will in sales mode (1/2 & 1/4 in lb mode.) If this option is set to N, then these keys will not work in any mode. **Remember, some states require that these keys be disabled.**

ADD key: The ADD key is used to combine multiple sales onto 1 label while still issuing individual labels. If this is set to Y then the ADD key will be operational. If this option is set to N, then the ADD key will not be operational.

TARE key: The TARE key is used to enter tares manually (using 0 ~ 9 keys to enter tare weight) and platter tare (placing empty container on the platter). If this is set to Y then the TARE key will be operational. If this option is set to N, then the TARE key will not be operational & only PLU programmed tares will be allowed.

Numeric Tare: If this is set to Y then the TARE key will allow manual tares. If this option is set to N, then the TARE key will not allow manual tares (using 0 ~ 9 keys to enter tare weight.)

00 key: If this is set to Y then the 00 key will work the same as pressing the 0 key twice. If this option is set to N, then the 00 key will not work at all (do nothing.)

Misc PLU keys: If this is set to Y then the 3 Misc PLU keys will work. If this option is set to N, then the 3 Misc PLU keys will not work as Misc PLU keys; instead they will operate as Speed Keys 54, 55, & 56 (unshifted) & 110, 111, & 112 (shifted) respectively.

PLU Unit Conversion: If this is set to Y then PLUs programmed will be switched from pound to metric weighing.

8.4 Clear Memory

Once at the CAL Main menu screen, press the 2 key. The System Options Menu screen will appear as follows. At the System Options Menu screen, press the 4 key for Clear Memory.

```
          < CAL: SYSTEM OPTIONS >

           1. WEIGHT OPTIONS
           2. NON-WEIGHT OPTIONS
           3. KEYPAD OPTIONS
           4. CLEAR MEMORY
           5. SELECT COUNTRY
```

```
          < CAL: CLEAR MEMORY >

              1. NON-VOLATILE MEMORY
              2. STATIC RAM
              3. EEPROM
              4. ALL MEMORY
```

The Clear Memory Menu screen will appear as follows:

Non-Volatile Memory: This is where all of your PLU data, label formats (100 ~ 999), and non-CAL mode settings are stored. Erasing this memory will lose all PLU, Label formats 100 to 999, and non-CAL mode options.

Static RAM: This is where all of your PLU sales data & the scale's Runtime environment are stored. Erasing this memory will loose all PLU sales data.
EEPROM: This is where all of your CAL mode settings & calibration data are stored. Erasing this memory will require complete reprogramming of ALL CAL mode options and then SPAN calibration of the scale (**must be done in that order.**) **NOTE: This will have no effect on the Audit Trail Counters; there is no way of resetting the Audit Trail Counters.**

All Memory: As the title implies, this option will erase ALL 3 memories & thus you will be faced with the above 3 ramifications.

Selecting any of the 4 options will bring you to the following screen:

```
Are you sure? (Y/N)
```

Once you press Y, there is no turning back. Some memories will take longer than others to clear; however, the maximum time to clear ALL the memories is approximately 60 seconds. Some of the clearing processes will report memory chip numbers or memory sizes during the process.

WARNING: If you clear the memory you will loose ALL data in that respective part of memory!

8.5 Select Country

You can select country, and then EEPROM is initialized.

Not: country code must be reset after memory clear in version 2.06 or lower

```
                                    NUMERIC
                  < SELECT COUNTRY >

      Select Number          : [0]

0. Default       1. USA           2. RUSSIA
3. TURKEY        4. EUROPE        5. EGYPT
6. GREECE
```

9 Digital Filtering

9.1 Digital Filter Settings

Once at the CAL Main menu screen, press the 3 key. The Digital Filtering screen will appear as follows:

```
                                NUMERIC
      < CAL: DIGITAL FILTERING >

   Motion Band           : [ 3] COUNTS
   Filter Band           : [10] COUNTS
   Filter Sample Times   : [ 8]
```

Motion Band: This value is used to set the scales stability lamp. It can be from 0 to 50 but should never be less than 3. When the scale weight is stable, the stable symbol O is on; when the scale is unstable the stable symbol is off. Higher value makes the weighing more stable but slower.

- **Stable to Unstable:** If there are 2 consecutive load cell readings whose difference is greater than the Motion Band, then the stable lamp is shut off.
- **Unstable to Stable:** If there are 4 consecutive load cell readings whose difference between any pair is less than or equal to the Motion Band, then the stable lamp is turned on.

Filter Band: This value is used to filter out small vibrations from noisy environments. It can be from 0 to 50 but should not be less than 10. The filter will also affect stability: the more filtering the more stable the scale appears. Higher values will filter out more noise but will slow the weight response time.

- **Filter:** If there are Filter Sample Times number of consecutive load cell readings whose difference is greater than the Filter Band, then they are not filtered; if they are less than or equal to the Filter Band, then they are averaged together.

Filter Sample Times: This value controls the number of readings that the Filter Band uses. It can be from 0 to 16 but should not be less than 8. Higher values will smooth out sharp weight changes due to noise.

10.1 Printer Hardware Settings Menu

Once at the CAL Main menu screen, press the 4 key. The Printer Hardware Settings Menu screen will appear as follows.

```
< CAL: PRINTER HARDWARE SETTINGS >

1. PRINTER SENSORS     5. ADJUST FEED LENGTH
2. PRINT SPEED         6. AUTO THRESHOLD
3. PRINTER ODOMETER    7. REPORT SETTINGS
4. LABEL TYPE
```

10.2 Printer Sensors

At the Printer Hardware Settings Menu screen, press the 1 key for Printer Sensors. The Printer Sensors Menu screen will then appear as follows:

```
< CAL: PRINTER SENSORS >

1. GAP/PEEL CALIBRATE
2. FINE GAP ADJUST
3. FINE PEEL ADJUST
```

Gap/Peel Calibrate: This is an automated process that calibrates both sensors. Please make sure that there are non-continuous labels in the printer, that the labels are installed properly, and that the print head is locked down. *Using continuous labels will not calibrate the Gap sensor.*

Fine Gap Adjust: This is a manual process that allows you to change the Gap sensor threshold value directly.

Fine Peel Adjust: This is a manual process that allows you to change the Peel sensor threshold value directly. This process also lets you actively test your setting.

Gap Sensor: This is the sensor that is used to sense the spaces between the labels (gaps.) It is responsible for top-to-bottom alignment of your print.

Peel Sensor: This is the sensor that is used to sense if there is a printed label waiting to be picked up by the user. If there is a printed label waiting to be picked up, this sensor will prevent another label from printing. It will display an error message on the top right of the screen: "PEEL OFF".

10.2.1 Gap/Peel Calibrate

At the Printer Hardware Settings Menu screen, press the 1 key for Printer Sensors. The Printer Sensors Menu screen will then appear. At the Printer Sensors Menu screen, press the 1 key for Gap/Peel Calibrate. You will see the following screen:
Once ready, press any key.

The printer will then feed out several labels and then print the threshold values.

```
< CAL: PRINTER SENSOR CALIBRATION >

  Load Printer With Gapped Labels
     Press any key when ready.

    GAP=   100  PEEL=   151
```

```
< CAL: PRINTER SENSOR CALIBRATION >

The Printer will calibrate sensors
    and print threshold values.
    Press any key when ready.

    GAP=   100  PEEL=   151
```

Once the threshold values are printed they will also appear on the top left corner of the screen temporarily. Finally, the screen will return to the Printer Sensors menu.

```
< CAL: PRINTER SENSOR CALIBRATION >

The Printer will calibrate sensors
    and print threshold values.

     GAP=   102  PEEL=   150
```

10.2.2 Gap Sensor Fine Adjust

At the Printer Sensors Menu screen, press the 2 key for Fine Gap Adjust. You will see the following screen:

Pressing the 1 key will decrease the value by 1; the 2 will decrease it by 5. Pressing the 3 key will increase the value by 1; the 4 will increase it by 5.

```
        ADJUST GAP SENSOR THRESHOLD

     1. Decrease         3. Increase
     2. Decrease 5       4. Increase 5

           THRESHOLD= 200

        USE FEED KEY TO TEST
```

Press the FEED key to the test alignment or press the SAVE key to save the changes.

10.2.3 Peel Sensor Fine Adjust

At the Printer Sensors Menu screen, press the 3 key for Fine Peel Adjust. You will see the following screen:

Pressing the 1 key will decrease the value by 1; the 2 will decrease it by 5. Pressing the 3 key will increase the value by 1; the 4 will increase it by 5.

```
        ADJUST PEEL SENSOR THRESHOLD

     1. Decrease         3. Increase
     2. Decrease 5       4. Increase 5

           THRESHOLD= 125
```

You can press the FEED key to test the status of the sensor: if there is a label waiting to be taken then it will read BLOCKED; if you remove the label it will read UNBLOCKED. When finished, you can press the SAVE key to save the changes.

10.3 Print Speed

At the Printer Hardware Settings Menu screen, press the 2 key for Print Speed. The Print Speed screen will then appear.

```
                                   NUMERIC
          < CAL: PRINTER SPEED >

  Print Speed (1-5) :[1]
1= Fastest, 5= Slowest
```

If you press ENTER or SAVE, the scale will print a TPH (Thermal Print Head) test label at the indicated speed and return to the previous screen.

Speed 1 is 4"/second (100 mm/sec); speed 5 is approximately 2"/second (50 mm/sec.)

10.4 Printer Odometer

At the Printer Hardware Settings Menu screen, press the 3 key for Printer Odometer. The Printer Odometer screen will then appear.

If you press FEED you will see the odometer change.

```
The printer has run for 20.532 Meters

Use FEED key to test
```

This feature is useful to keep track of TPH (Thermal Print Head) life and printer wear & tear. If you replace a TPH, you can write down the odometers value at the time of replacement so that if the new TPH were to fail too soon, you would be able to tell how long that TPH was actually used for.

To exit, press the ESC key and the scale will return to the previous screen.

10.5 Label Type

At the Printer Hardware Settings Menu screen, press the 4 key for Label Type. The Label Type screen will then appear.

For Label Type = 0, you will always see this screen.

```
Press ALT for Auto Setup     NUMERIC
            < SET: LABEL TYPE >

Type (0-2):[0] 57mm X 99mm Labels
Width     (25-80):  [60] mm= 2.362 inches
Length               40  mm= 1.574 inches
Gap                   3  mm= 0.118 inches
```

Label Type 0: This is the standard fixed sized label media with liner backing paper. The Length value is the length of the label itself from top to bottom. To capture the Length value, press the ALT key twice. The scale will feed out several labels and automatically detect the length and the gap size. Please make sure that you have standard "gapped" (non-continuous) labels in the printer whenever you execute this procedure.

Label Type 1: This is for continuous strip labels with liner backing paper. In this mode, the Gap Sensor is not used as there are no gaps on continuous media.

For Label Type = 1 or 2, you will always see this screen.

```
             < SET: LABEL TYPE >

Type (0-2):[1] 57mm Continuous Strip Label
Width     (25-80):  [60] mm= 2.362 inches
Feed      (0-170): [ 40] mm= 1.574 inches
Rcpt Feed (0-170): [ 10] mm= 0.393 inches
```

Label Type 2: This is linerless-continuous strip label media or receipt thermal paper. **Both of these do not have** liner-backing paper. Type 2 works the same as Type 1 except that the pick-up motor will not operate, as there should be no liner to pick-up.

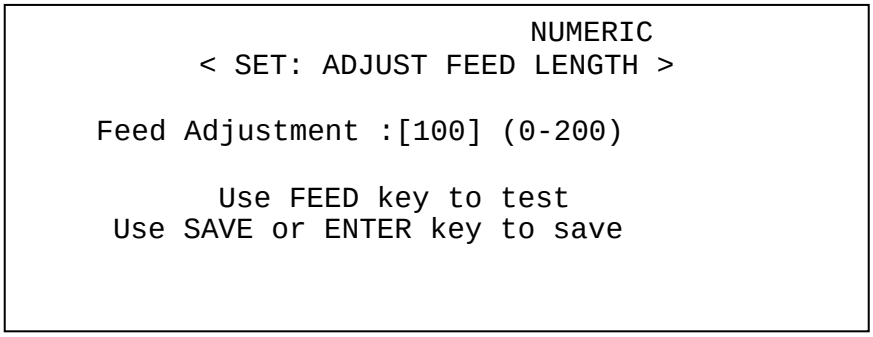
Width: This value is the width of the label or paper and NOT the width of the liner backing paper. It must be specified in millimeters. If this value is incorrect then some label formats may print properly but no receipts or reports will print properly. The **Width** can be from 20 mm to 80 mm.

Feed: This value determines the amount of labels/paper to feed when you press the **FEED** key. The **Feed** value can be 0 mm to 170 mm. The **Feed** field is only for type 1 or 2.

Rcpt Feed: This value is the amount of blank space to feed after each receipt, report, or label is printed. This is done so that the paper cutter can tear the receipt or label properly. The **Rcpt Feed** can be from 0 mm to 170 mm. The **Rcpt Feed** field is only for type 1 or 2.

You can press **SAVE** or the **ENTER** key while the cursor is on the last field in order to save the current screen contents and return to the previous menu, or press the **ESC** key to return to the previous menu.

10.6Feed Adjust



At the Printer Hardware Settings Menu screen, press the 5 key for Feed Adjust. The Feed Adjust screen will then appear.

Feed Adjustment: This is a fine adjustment that controls the print position from top-to-bottom on a label. The higher the number, the higher the printing will appear. The lower the number, the lower the printing will appear. The norm is 100. 1 Feed Adjustment is 1/8 of a millimeter, therefore if you change the Feed Adjustment from 100 to 108, then everything will print 1 mm higher on the label.

You can also use this feature to make sure that when you print a label, it will come out far enough to be easily removed from the liner backing paper. For example, if the label feeds out too far then the labels may fall-off after they print. If the label does not feed out far enough, then the labels may need to be pulled-on after they print. Another reason to change this value is when you use labels with pre-printed lines and boxes. In this case, you may need to change the Feed Adjust so that fields are printed in the right places; however, if that does not remedy the problem, you may have to fine-tune the corresponding label format using the LP-2 Software Package. If you use the same label stock, you will not need to change this value. Make sure to always use CAS Certified media. Using poor quality media, whether it is thermal paper or labels, may damage your TPH.

10.7 AUTO THRESHOLD

This is the minimum weight division when you use the scale with auto print.

10.8 REPORT SETTINGS

Refer to Section 8.2.3

11.1 Setting Up a Network

To set up a wireless network using a router and internal wireless bridge (optional), there are several steps which must be done using a PC. Refer to Networking manual for additional information. The following are the instructions for setting up the scale

At the CAL menu, press
the 5 key for Network Options
and the following screen appears.

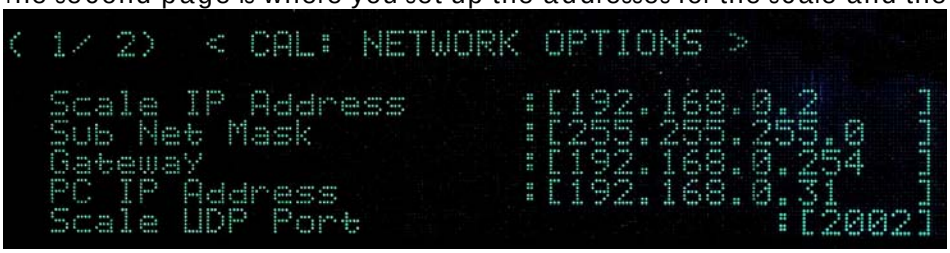
Network is Used? (Y/N): This will determine whether the unit is being used as a stand-alone unit or in a network.

PC Master is Used? (Y/N): used in a network, the **PC is counted as the Master Scale (scale #1)**

Clerk Mode (0-2): Determines whether or not the scale is assigned to certain clerks

This Scale is Number: The scales can be numbered from 1-99. However, when used with a PC Master in a network, **the PC is considered scale number 1** and the scales can be assigned any number from 2-99.

The second page is where you set up the addresses for the scale and the PC



Scale IP Address: The first three numbers in this address much match the first three numbers on the network. The last number can be anything from 1-999, but is usually the same as the scale number.

Sub Net Mask: Sets number of available devices in a network. For our purposes, it is **always set at 255.255.255.0**

Gateway: This is used for access from a PC outside the network. Since we strongly recommend that these scales **always be on a dedicated network** this number is not needed.

11 Network Options

PC IP Address: This is obtained from the Network Connections menu on the computer. You will be given a choice to either assign a number of have one automatically assigned. It is strongly recommended that you choose your own number. Make sure the first three numbers match the IP address

Scale UDP Port: When connected to a PC, all port settings should be automatically detected. This is **always set to 2002.**

There are also settings on page 2.

PC UDP Port: Always set to 2001

PC UDP Port (for Messenger): -ONLY DISPLAYED IN VERSION 2.24 OR HIGHER. Always set to 2000.

NOTE: For versions below 2.24 there is no setting for the UDP Port for Messenger

12 Self Test Mode

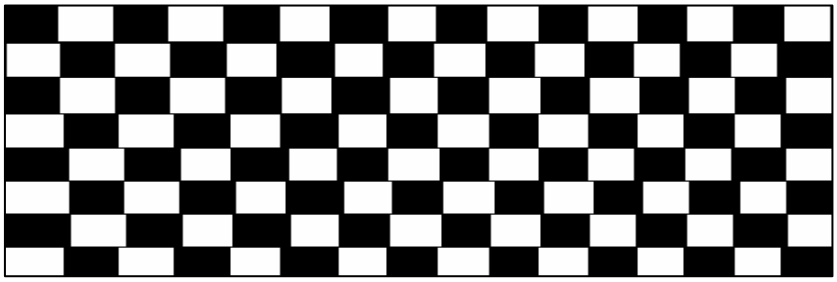
12.1 Self Test Menu

Once at the CAL Main menu screen, press the 6 key. The Self Test Menu screen will appear as follows.

```
                    < SELF TEST >

1.DISPLAY                   6.MEMORY SIZE
2.LOADCELL                  7.NV MEMORY TEST
3.KEYBOARD                  8.SERIAL PORT
4.PRINTER                   9.FIRMWARE VERSIONS
5.PEEL-OFF
```

12.2 Display Test

At the Self Test Menu screen, press the 1 key for Display Test. The Display Test screen will show until you press any key. It will keep alternating the checker pattern so that you may spot a possible problem with a segment.



12.3 Load Cell Test

At the Self Test Menu screen, press the 2 key for Load Cell Test. The Load Cell Test screen will be displayed.

```
                  < LOAD CELL TEST >

  RAW                    RAW                 EXTERNAL
COUNTS                INTERNAL              COUNTS
12369                      0                     0
```

Zero Adjusted: These are the raw ADC (Analog to Digital Converter) counts minus the Current Zero. In the example to the right, the Current Zero is 3569 counts.

Internal Counts: This is the raw count coming from the ADC. The Zero Adjusted and the Internal Counts are the same except that the Zero Adjusted starts at 0 when you enter this screen. In the example above, the Current Zero is 3569 & the Zero Adjusted is 3569 – 3569 = 0. If the Internal Counts went up to 4000, then the Zero Adjusted would be 4000 – 3569 = 431 (RAW – CURRENT ZERO = ZERO ADJUSTED).

The external weight is calculated using theses very simple values. First, the **Calibrated Zero** is calculated by reading the raw counts while there is nothing on the platter. Lets say in this case that the **Calibrated Zero** is 3562. The scale also stores the **Span Value**, which is obtained by reading the raw counts while the full capacity is on the platter and then subtracting the **Calibrated Zero**. Lets say in this case that the **Span Value** is 74062. This is what happens when you Span calibrate the scale. After you are done in CAL mode, the scale saves all your changes in the EEPROM.

When we turn the scale ON, it reads the platter weight and sets the **Current Zero**. It makes sure that the **Current Zero** is at most **±5% of 60 lb** from the **Calibrated Zero**. Let us assume that the **Current Zero** is equal to the **Calibrated Zero**. Once the scale is ON, it simply takes the raw counts and puts it into the following formula:

(Raw Counts – Current Zero) X (*Resolution* ÷ Span Value) ÷ 1000 = Weight

Where *Resolution* = to 60000 for 60 lb, 30000 for 30 kg or lb, 15000 for 15 kg

In our case if we place 60 lb on the platter, the raw counts should be 77624. Now we plug this into the formula and we get: (77624 – 3562) X (60000 ÷ 74062) ÷ 1000 = **60.000** lb. Of course, we need to round the number to the nearest 2/100th of a pound because the scale's division at 60 lb is 0.02. So in this case, 60.000 lb rounds to 60.00 lb.

Another example would be placing 15 pounds on the platter. In this case the raw counts should be 22077. Using the formula we get: (22077 – 3562) X (60000 ÷ 74062) ÷ 1000 = **14.999** lb. Again, we need to round this number but this time to the nearest 1/100th of a pound because the scale's division at 15 lb is 0.01. So in this case, 14.999 lb rounds to 15.00 lb.

NOTE: You may find the Span Fine Adjust screen a bit more useful for testing the load cell. This screen shows the weight in 0.001 lb divisions; however, the display update rate is low so the weight display appears sluggish. You simply need to wait a few more seconds to see the weight fully stabilized.

12.4 Keyboard Test

At the Self Test Menu screen, press the 3 key for Keyboard Test. The Keyboard Test screen will be displayed.

```
< KEYBOARD TEST >

        Keyboard Value: 100
Converted (ASCII) Value:  51
              Key Name:   Q
```

Keyboard value: This value is in hexadecimal and corresponds to a key's hardware scan code. See the keyboard table (next page.)

Converted Value: This value corresponds to a key's ASCII value. It only applies to the QERTY keyboard and the numeric keys. All ASCII values generated by other keys are ignored.

Key Name: For most keys this should be the same as the words or symbols that appear on the key.

You can use this test to see if there is a problem with the keyboard. If you press a key and it does not generate a response on the screen, then you know the switch may be broken. Another possibility is that two different keys may generate the same Keyboard value. In this case you may have a short in the keyboard. Notice that even the 2 SPACE keys have different Keyboard values.

The table is arranged in the same order as the scale's keyboard. Some keys are not shown with their key names because these keys are not keys from the standard QWERTY keyboard. The shaded keys are from the standard QWERTY keyboard.

Although some key functions can be disabled, this does not mean that the key is disabled; therefore, all keys should illicit some response in this test mode.

12 Self Test Mode

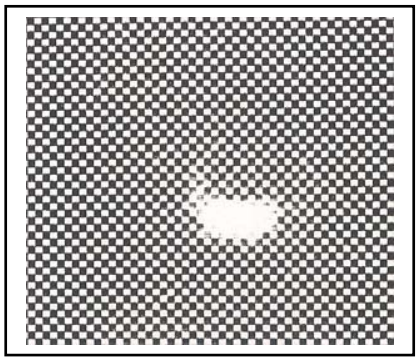
Keyboard Codes

100 51 Q	101 57 W	102 45 E	103 52 R	104 54 T	105 59 Y	106 55 U	107 49 I	30 4F O	32 50 P	1F 1F	20 20	21 21
108 41 A	109 53 S	10A 44 D	10B 46 F	10C 47 G	10D 48 H	10E 4A J	10F 4B K	31 4C L	19 19	1A 1A	1B 1B	1C 1C
110 5A Z	111 58 X	112 43 C	113 56 V	114 42 B	115 4E N	116 4D M	117 2C ,	13 13	24 24	15 15	16 16	17 17
118 7C \	119 7B [	11A 7D]	11B 20	11C 20	11D 5F -	11E 2B =	11F 2E .	7 37 7	8 38 8	9 39 9	11 11	12 12
120 40 (	121 23)	122 5E &	123 25 !	124 24 *	125 3A ;	126 22 ‘	127 3F /	4 34 4	5 35 5	6 36 6	F F	10 10
128 C0 à	129 C8 È	12A CC ì	12B D1 Ñ	12C D2 ò	12D D9 ù	12E DC ü	12F 3C >	1 31 1	2 32 2	3 33 3	D D	E E
130 130	131 131	132 132	133 133	134 134	135 135	136 136	137 137	A 2E	0 30 0	B B	1D 1D	C C

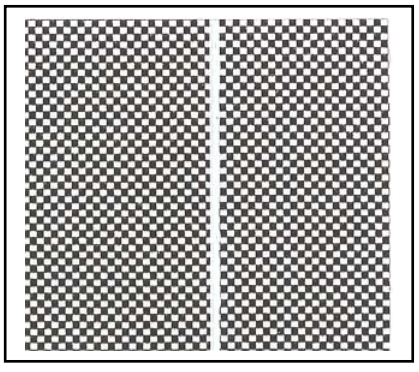
12.5 Printer Test

At the Self Test Menu screen, press the 4 key for Printer Test. The scale will then print a TPH test label. This label has a checker pattern that can help you find problems with the TPH (Thermal Print Head.) You should clean the TPH before you try this procedure. Follow the maintenance procedure for cleaning the TPH. The following pages have samples of problems that can occur.

There are several things that this printout can reveal:



1



2

1. The rubber roller may be dirty or have something stuck to it. Also, the roller may be perforated.
2. This is a clear indication that the TPH has been damaged or burned out.

If you need to replace the TPH, please contact the CAS (USA) Service Department.

12.6 Peel Off Test

At the Self Test Menu screen, press the 5 key for Peel-Off Test. The scale will then display the Printer Peel-Off Test screen.

```
< PRINTER PEEL-OFF TEST >

SENSOR CHECK : UNBLOCKED
```

If you lay flat a piece of paper on the left side of the Peel Bar, you will see the UNBLOCKED status change to BLOCKED. Once you remove the paper, you will see the status return to UNBLOCKED. If you do not experience that behavior, run the Gap/Peel calibration and test again. If the problem persists, you may need to change the Peel Sensor Assembly.

12.7 NV Memory Size

This will display the amount of used and available memory

-

12.8 NV Memory Test

At the Self Test Menu screen, press the 6 key for NV Memory Test. The following screen appears

```
< SET: FLASH MEMORY TEST >

1.Check NV Memory Links
2.Check NV Memory Records
3.Check NV Memory Index Table
4.Check NV Memory Fragmentation
5.Defragment NV Memory
```

Options 1-3 are self checks and will simply return a value and go back to the Flash Memory Test screen. There is no need to check these values, as they are checked during power on.

Check NV Memory Fragmentation- This will give you the amount of free memory and how much of it is fragmented. This value will be displayed and then will return to the Flash Memory Test screen.

Defragment NV Memory- This will clean up disk space by removing incomplete file fragments from the hard drive on the scale. This should be done every few months as a precaution, but only must be done when a defragment error occurs.

12.9 Serial Port Test

At the Self Test Menu screen, press the 8 key for Serial Port Test. The scale will then display the Serial Port Test screen.

```
        < TEST: SERIAL COMM TEST  >

Place loopback plug on 9-pin RS-232C port
          Press any key when ready
```

Before you continue from this screen, you need to place a loop-back plug on the 9-pin serial port on the side of the scale. The loop-back plug needs to be a 9-pin male connector with pins 2 & 3 shorted. Once you have done this, press any key. If the serial port is working, you will see the message "RS-232 Test Passed" on the screen. After a few seconds, it will return to the Self Test Menu. If it fails, you will see the "RS-232 Test Failed" on the screen. You may press ESC to exit or any key to try again.

If you are having problems with this test, please make sure that the loop-back plug is connected properly and that it has pins 2 & 3 shorted. If the problem persists, you may have a damaged connector or serial port driver.

12.10 Firmware Versions Test

At the Self Test Menu screen, press the 9 key for Firmware Versions Test. The scale will then display the Firmware Versions Test screen.

```
Press any key when done.
           < CAL: FIRMWARE VERSIONS >
ROM    DESCRIPTION        VERSION  CHECKSUM
#1   SCALE SYSTEM ROM      2.24 US   2229
#2   SCREEN FONTS ROM      2.22 US   7E0B
#3   PRINTER FONTS ROM     1.10 ENG  9BF7
#4   PRINTER SYSTEM ROM    1.26 ENG  6109
```

This test can help you determine the versions of all of the scale's ROMs without having to take the scale apart. This feature can also be accessed from scale mode by pressing ESC and then HELP. This can also help with customer support over the phone, as it is not necessary to enter CAL mode to get this information

The versions and checksums listed above are the most current as of August 2006.

13 Audit Trails

13.1 Reading the Audit Trail Counters

1. **Make sure that the Main Power is OFF (switch on left side of scale.)**
2. Press and hold down the PRE PACK key.
3. While you are holding down the PRE PACK key, turn the Main Power ON.
4. Once you here a "chirp" release the PRE PACK key.
5. After a few seconds the scale will be in Audit Trail mode.

This is the Audit Trail Counter screen.

```
< AUDIT TRAIL COUNTERS >

CALIBRATION COUNTER= 7

     OPTION COUNTER= 14
```

Calibration Counter: This counter is incremented every time you attempt to Span or Zero calibrate or adjust, or every time you change the gravity constant. If you use the SAVE key or ENTER key from any of the afore mentioned screens, the scale will consider it an attempt to calibrate and the counter will be incremented. All of the screens that can change this counter will be noted in this manual.

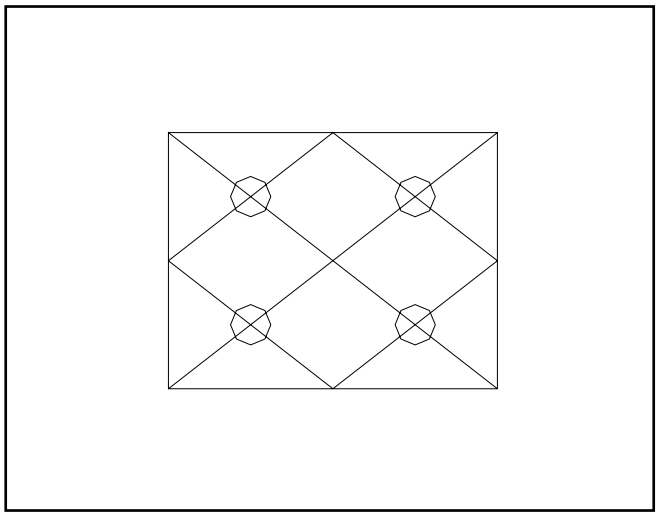
Option Counter: This counter is incremented every time you attempt to change or adjust any of the various NTEP regulated options. If you use the SAVE key or ENTER key from any of the Weight Options entry screens, the scale will consider it an attempt to change these options and the counter will be incremented. All of the screens that can change this counter will be noted in this manual.

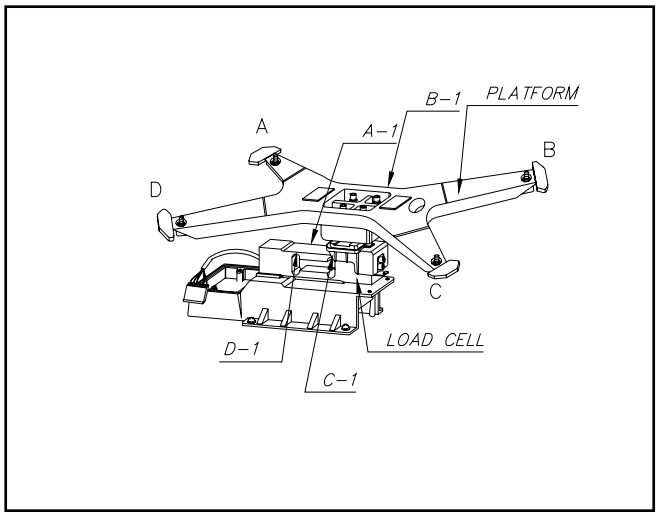
The Audit Trail eliminates the need of physically sealing the scale. It is up to the local inspector to be informed of this and any scale's sealing or Audit Trail procedures. If a physical seal is necessary, the LP-2 can be sealed from the top of the scale (underneath the platter.) *See the diagram on next page.*

14 Servicing and Parts Replacement

14.1 Platform Safety Overload Adjustment

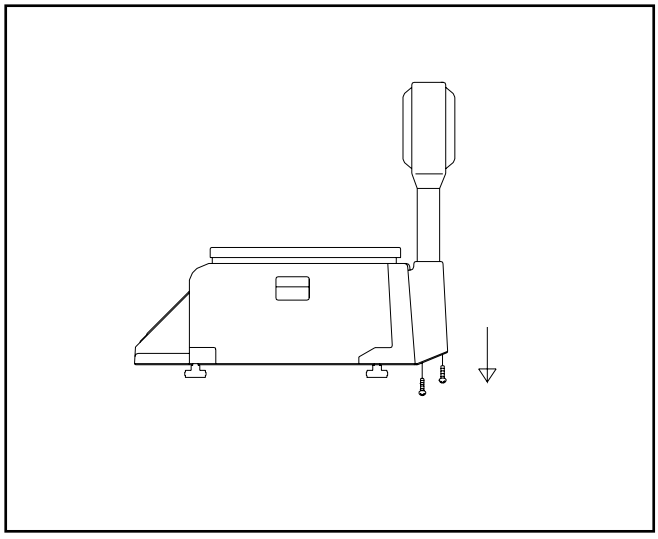
1. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
2. Remove the platter from the platform.
3. Place 1/2 the scale capacity on the right-rear corner of the platform making sure not to obstruct the Allen-bolt.
4. Adjust the Allen-bolt until it touches the screw underneath it on the upper case.
5. Repeat steps 3 & 4 for the other 3 corners of the platform.

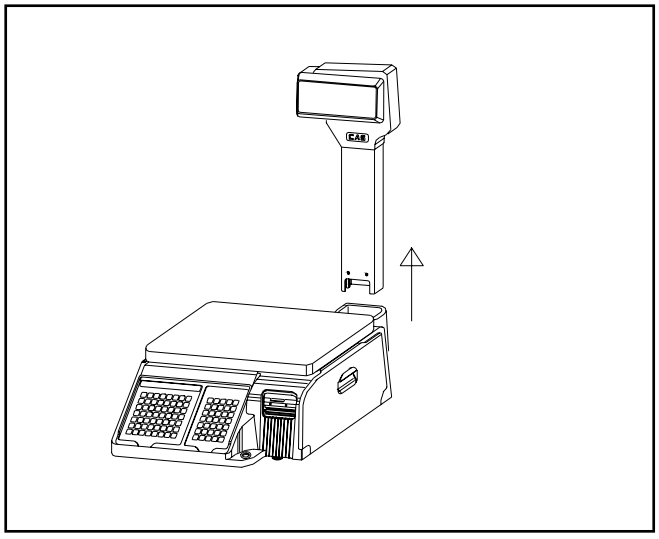




14.2 Removing the Upper Case

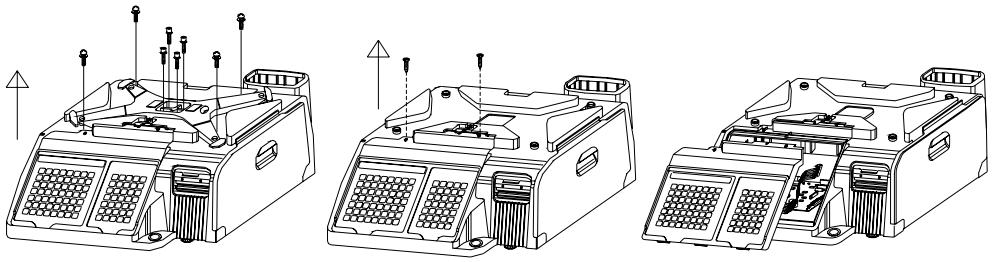
1. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
2. Remove the platter from the platform & all labels & backing paper from the printer.
3. Remove the display stalk:
    A. Unscrew the 2 screws from underneath the column base.
    B. Lift & remove the display stalk from the column base.



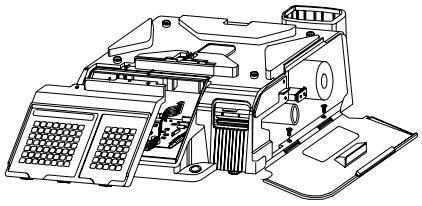


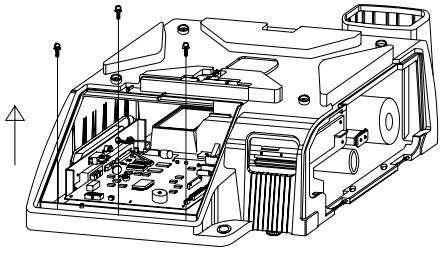
4. Remove the platform by removing the 4 Allen-bolts on top.

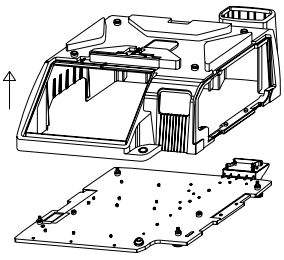
5. Remove the 4 screws on the corners of the uppercase.
6. Remove the key board:
7. Remove the 2 keyboard screws on top of the upper case.
   A. Remove the keyboard grounding screw on the Main PCB.
   B. Unplug the keyboard cable from J7 on the Main PCB.



8. Open printer side-door and remove 2 printer-bay screws.
9. Remove the 3 screws in the keyboard access area.
10. Remove the upper case by sliding it upwards.





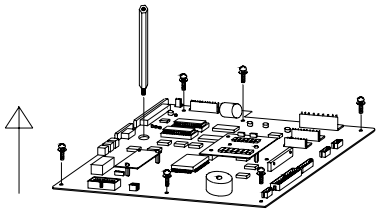


14.3 Main PCB Replacement

1. Follow all of the directions in section 0 first.

2. Unplug the main PCB connectors at:

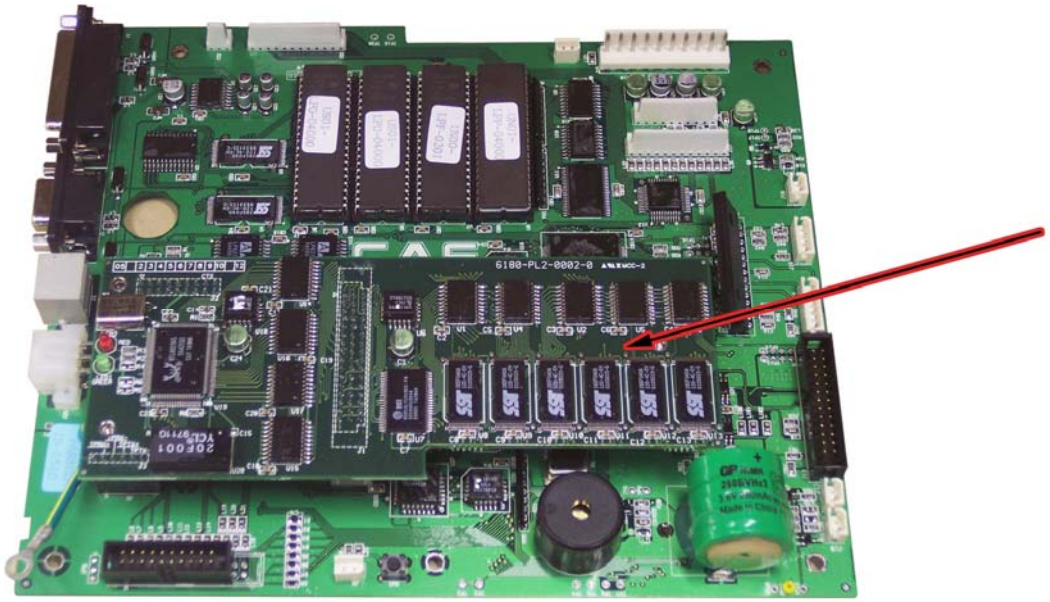
A. J9, CAL Switch.
B. J10, Peel Sensor.
C. J11, Peel Emitter.
D. J13, Thermal print head.
E. J14, Stepper motor.
F. J15, Gap sensor assembly.
G. J16, Pick-up motor.
H. J17, Display (A).
I. J18, Display (B).
J. J19, Power supply (A).
K. J20, Power supply (B).
L. J21, Load cell data.
M. J22, Load cell power.



3. Remove main post and 5 screws from the main PCB.
4. Slide out old PCB
5. Insert new main PCB.
6. If the new main PCB has no EPROMs, make sure to use the EPROMs from the old main PCB after you have determined that they are in working order.
7. The main PCB EPROMs are listed below in left-to-right order. They are to be inserted with the notch towards the front of the scale.

   A. U5, Scale 2.24 2220
   B. U6, Display 2.22 7EOb
   C. U7, UN00-LPF-0201
   D. U8, UN00-LPP-04000

   These are the most current versions as of August 2006
8. Once EPROMs and accessories are replaced, reassemble scale (reverse order.)
9. Do a Memory All Clear, (see section **Error! Reference source not found.**)



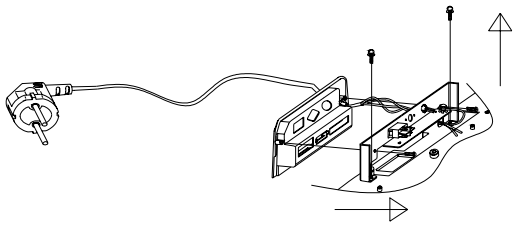
14.4 Network Board Replacement

The network board is located on top of the Main cpu

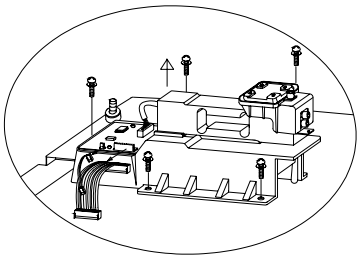
1.Follow all of the directions in section 14.2 first
2. Remove three screws, two on the left and one in the middle of the right side.
3. **Gently** pull board apart from main CPU
4. When replacing, make sure pins on both sides line up

14.5 Power Supply Replacement

1. Follow all of the directions in section 0 first.
2. Unplug the Power Supply connectors at:
A. CN1, Input power source.
B. CN21, Output power (A).
C. CN22, Output power (B).
3. Then, remove the 4 screws holding down the Power Supply chassis.
4. Install new Power Supply and reassemble in reverse order.



14.6 Load Cell & A/D Converter Replacement

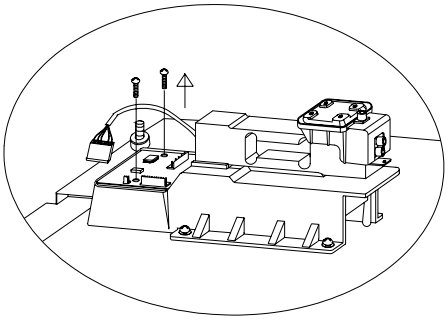


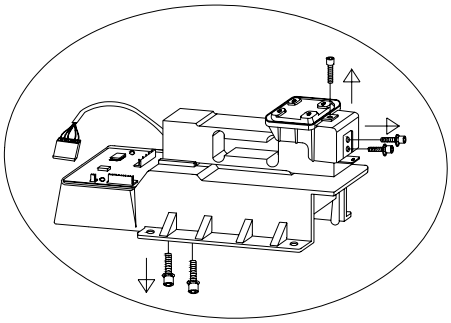
1. Follow all of the directions in section 0 first.
2. Unplug the A/D Converter connectors at:
   A. CON2, Load cell data.
   B. CON3, Load cell power.
3. Remove the 5 screws around the perimeter of the load cell assembly
4. Lift and remove the load cell assembly chassis & replace with a new order.

5. However, if you wish to replace only the load cell or A/D Converter P following:

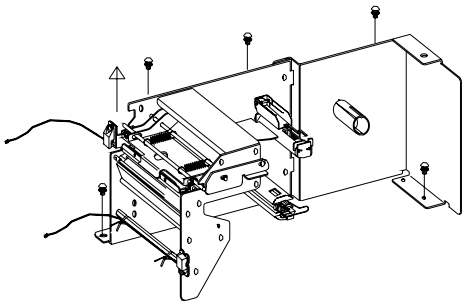
A. A/D Converter replacement:
   1. Disconnect the Load cell cable from CN1 on A/D Converter PCB.
   2. Remove the 2 screws on the A/D Converter PCB.
   3. Remove old A/D Converter PCB and attach new one.
   4. Reassemble in reverse order.

B. Load cell replacement:
   1. Disconnect the Load cell cable from CN1 on A/D Converter PCB.
   2. Remove the Allen-bolt from the top of the Load cell Main bracket.
   3. Remove the 2 Allen-bolts from the side of the Load cell Main bracket.
   4. Remove the 2 Allen-bolts from underneath the load cell assembly chassis.
   5. Remove the load cell and replace with a new load cell of equal capacity.
   6. Reassemble in reverse order.
   7. Make sure that the safety overload stop tab is positioned properly (see diagrams below.)





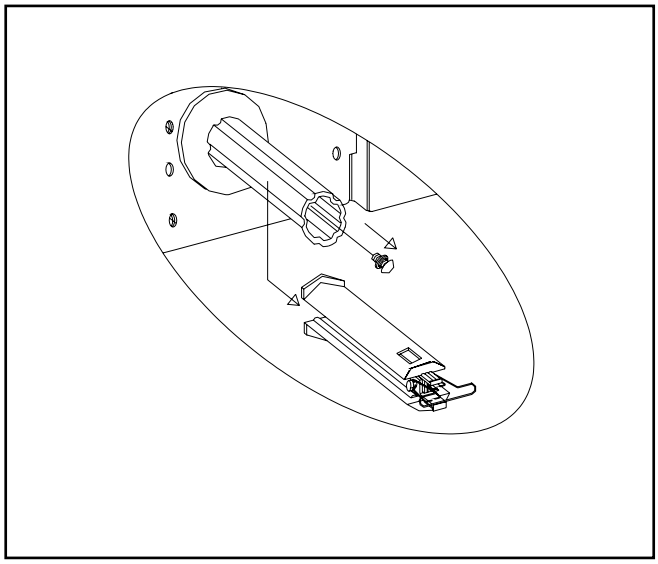
14.7 Printer Assembly Replacement

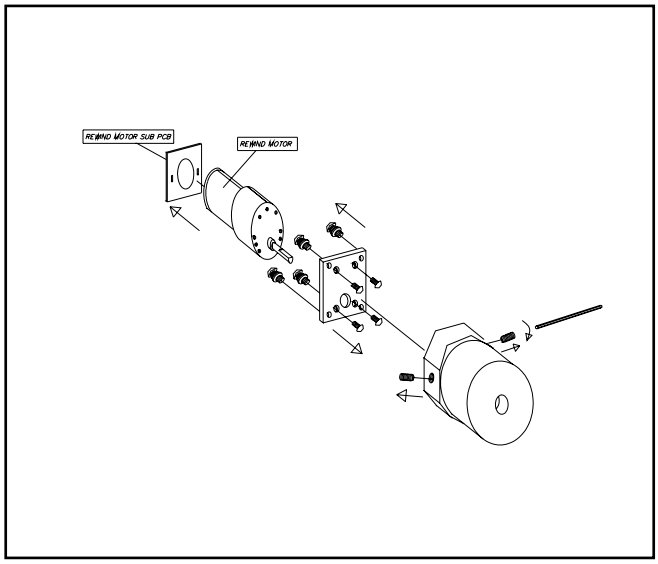


1. Follow all of the directions in section 0 first.
2. Unplug the main PCB connectors at:
A. J10, Peel Sensor.
B. J11, Peel Emitter.
C. J13, Thermal print head.
D. J14, Stepper motor.
E. J15, Gap sensor assembly.
F. J16, Pick-up motor.
3. Remove the 5 screws around the perimeter of the Printer chassis.
4. Lift up and remove old chassis & replace with new Printer chassis.
5. Reassemble in reverse order.
6. To replace individual printer parts, please follow the corresponding directions in respective subsections of 0.

14.7.1 Rewind Motor Assembly Replacement

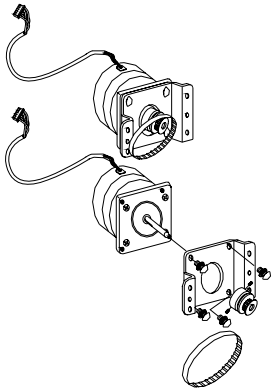
1. **Follow all of the directions in section 0 first.**
2. Unplug connector J16 on main PCB.
3. Remove the Rewind Clamp.
4. While holding the Rewind Support, unscrew the screw inside the its center.
5. Remove the Rewind Support from the Rewind Joint.
6. On the Rewind Joint, remove the 2 Allen-screws & pull out the Rewind Joint.





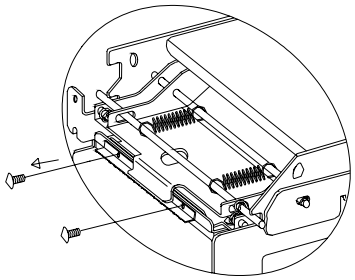
7. Unsolder the Rewind Motor Sub-PCB from the Rewind motor & remove it.
8. Remove the 4 screws from the Rewind Motor Bracket and then remove the Rewind Motor assembly from the Printer Chassis.
9. Reassemble in reverse order.

14.7.2 Stepper Motor Assembly Replacement

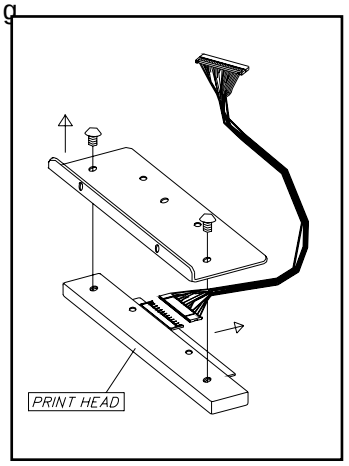


1. **Follow all of the directions in section 0 first.**
2. Unplug connector J14 on main PCB.
3. Slide the Timing Belt off of the Feed Gear.
4. Remove the 4 screws that hold the Stepper Motor Bracket.
5. Remove the Stepper Motor and replace with new Stepper Motor.
6. **It is suggested at this time to also replace the Timing Belt.**
7. Reassemble in reverse order.

14.7.3 Thermal Print Head Replacement

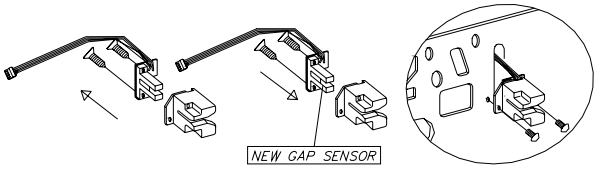


1. **Please make sure not to scrape the undersurface of the Print Head at all times.**
2. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
3. Remove all labels & backing paper from the printer & set the Print Head to its **locked-down** position.
4. Remove the 2 front screws on the TPH Bracket & remove the Paper Cutter (if present.)
5. Set the Print Head to its **unlocked** position and gently slide the Print Head out of the scale towards the front being careful not to damage the ribbon cable attached to the Print Head. If you have not removed the Upper Case, you may need to angle the Print Head so as to be able to pull it through the Upper Case printer opening.
6. Unplug the ribbon cable from the Print Head.
7. Remove the 2 screws that hold the TPH Sub-Bracket to the Print Head.
8. Attach the 2 screws & the TPH Sub-Bracket to the new Print Head.
9. Attach the ribbon cable to the Print Head **making sure that the polarity notch is facing up (please follow diagram closely.**
10. Reassemble by following reverse order.



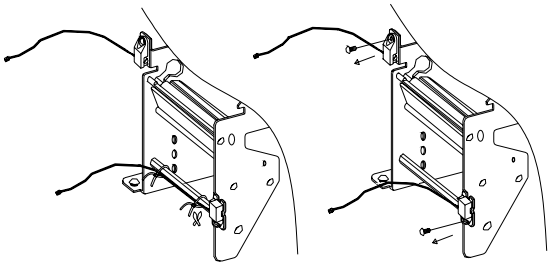
14.7.4 Gap Sensor Assembly Replacement

1. **Follow all of the directions in section 0 first.**
2. Unplug connector J15 on main PCB.
3. Remove the 2 screws attached to the Gap Sensor Assembly.
4. Remove the Gap Sensor Assembly from the Printer Chassis and replace with new Gap Sensor.
5. Reassemble in reverse order.
6. **Once scale is completely reassembled, you must recalibrate the Peel & Gap sensors.**

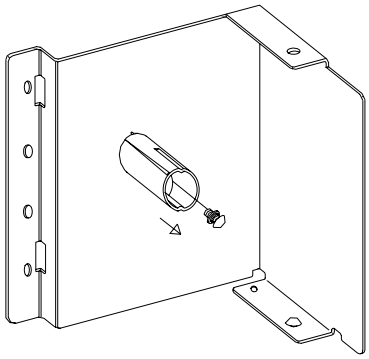


14.7.5 Peel Sensor Assembly Replacement

1. **Follow all of the directions in section 0 first.**
2. Unplug the connectors at J10 & J11 on the main PCB.
3. Cut & discard the 2 cable ties on the side Bracket Suppor (see diagram.)
4. Remove the screw attached to the Peel Sensor Assembly and also remove the screw on the IR LED Assembly.
5. Remove the IR LED & Peel Sensor Assemblies & replace with new ones.
6. Remember to attach new cable ties in the same place as before.
7. Reassemble in reverse order.

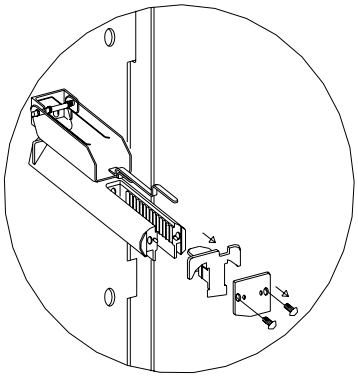


14.7.6 Label Roll Spool Replacement



1. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
2. Remove all labels & backing paper from the printer
3. Remove center screw from label roll spool
4. Remove label roll spool and replace
5. Replace center screw

14.7.7 Width Adjuster Replacement



1. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
2. Remove all labels & backing paper from the printer.
3. Unscrew the 2 screws on the Width Adjuster & remove the Paper Guide Plate.
4. Remove the Paper Guide Adjuster by sliding it out.
5. Remove the screw at the base of the Width Adjuster chassis.
6. Remove the Width Adjuster chassis and replace with new Width Adjuster chassis assembly.
7. Reassemble in reverse order.

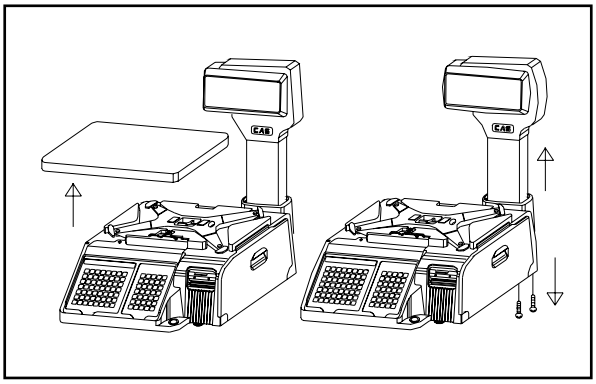
14.8 Display Replacement

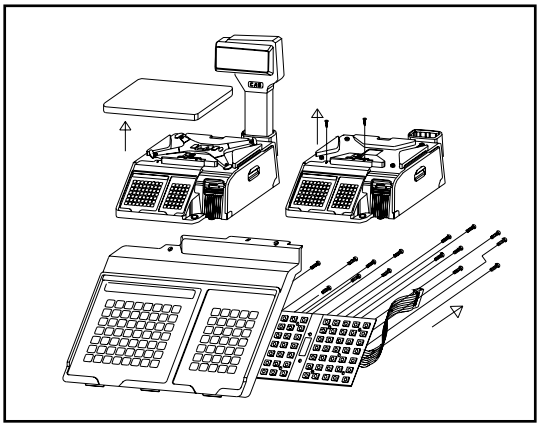
1. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
2. Remove the platter from the platform & all labels & backing paper from the printer.
3. Remove the display stalk:
    A. Unscrew the 2 screws from underneath the column base.
    B. Lift & remove the display stalk from the column base.
4. Insert new display stalk and reassemble in reverse order.

14.9 Keyboard Replacement

Make sure that the Main Power switch is OFF & that the scale is unplugged.

1. Remove the platter from the platform & all labels& backing paper from the printer.
2. Remove the keyboard:
    A. Remove the 2 keyboard screws on top of the upper case.
    B. Remove the keyboard grounding screw on the Main PCB.
    C. Unplug the keyboard cable from J7 on the Main PCB.
3. Reattach a new keyboard, reassembling in reverse order.





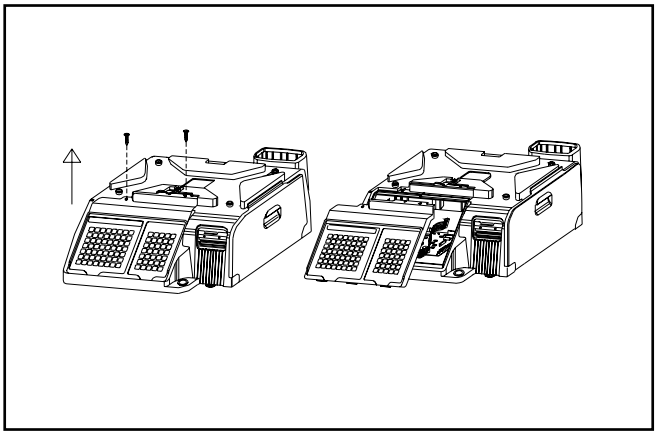
14.10 Keyboard Servicing

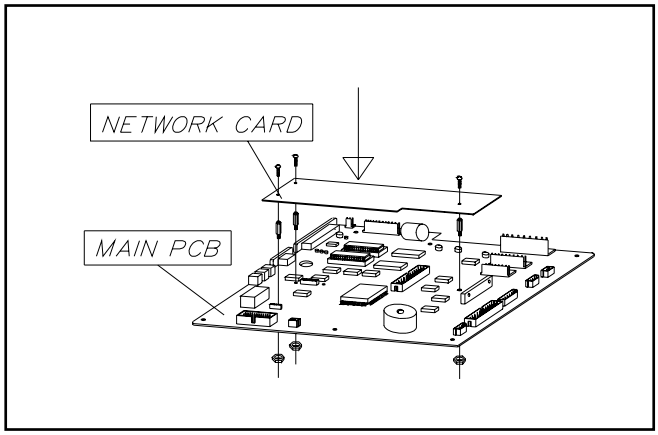
1. **Follow steps 1, 2, & 3 from 0 14.9 Keyboard** Replacement.
2. Remove all 15 screws from the Keyboard PCB.
3. You can now replace any switch that is not working. Remember that each switch has 4 pins soldered to the keyboard PCB.
4. You may also replace any of the Keyboard Under-lays being careful not to loose or misalign any of the Key Knobs.
5. Once done, reassemble in reverse order. **Be very careful not to over tighten the keyboard PCB screws.**

15 Installing Options

15.1 Installing the Network Memory Card

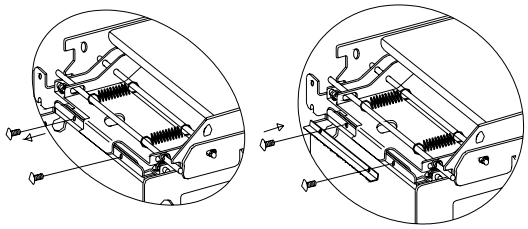
1. Make sure the power switch is OFF and the scale is unplugged
2. Remove the keyboard:
   A. The 2 keyboard screws on top of the upper case.
   B. Lay the keyboard face down.
3.Plug the Network Card into connectors J5 & J6 on the Main PCB. **Make sure that all of the pins are aligned properly and that the 2x9 connector is facing to the rear of the scale.**
4.Attach the 2 grounding screws to the Network Card PCB. **Do not over tighten.**
5.Reassemble in reverse order.





15.2 Installing the Paper Cutter

1. **Please make sure not to scrape the undersurface of the Print Head at all times.**
2. **Make sure that the Main Power switch is OFF & that the scale is unplugged.**
3. Set the Print Head to its **locked-down** position.
4. Remove the 2 front screws on the TPH Bracket.
5. Attach the paper Cutter with the 2 front screws.



16 Troubleshooting

16.1 Troubleshooting Chart

Symptom	Possible Causes	Possible Solutions	Reference
Scale will not power ON.	1. No power to the Power Supply.	▪ Plug the Power Cord in to a working outlet. ▪ Check/replace fuse. ▪ Check/replace Power Cord. ▪ Check/replace Main Power Switch. ▪ Check/replace Power Supply Input Harness, CN1 PS.	3.3, 4.1, 14.4, 17.5, 18.1, 19.7
	2. No power to Main PCB.	▪ Check/replace Wire Harness, CN21 PS. ▪ Check/replace Wire Harness, CN22 PS. ▪ Check/replace Power Supply. ▪ Check/replace Display Harness, J17/J18 M-PCB. ▪ Check/replace Display Stalk. ▪ Check/replace ADC Wire Harness, CON3 AD-PCB. ▪ Check/replace AD-PCB. ▪ Check/replace Network PCB. ▪ Check/replace Printer Assembly.	2.1, 2.2, 3.3, 4.1, 4.2, 14.7 14.3, 14.4 14.6 17.4, 17.5, 18.1, 19.3, 19.6, 19.7
	3. Power to Main PCB is OK.	▪ Check/replace all EPROMs. ▪ Check/replace Memory Expansion PCB. ▪ Check/replace Main PCB. ▪ **Also check *2.No power to Main PCB.***	8.12, 12.10, 13.2, 13.3, 17.3, 17.5, 19.1, 19.6
Scale powers ON with an error.	1. "Printer Continuously Busy."	▪ Check/replace Printer System EPROM, U8 M-PCB. ▪ Check/replace Main PCB. ▪ Check/replace Printer Assembly.	10.5, 12.10, 14.3, 17.3, 19.6
	2. "Calibrated mass error."	▪ Reprogram all Weight settings & Span calibrate the scale.	7.1 ~ 7.4, 6.1
	3. "Load Cell not ready."	▪ Check for platter or platform obstruction. ▪ Check/replace ADC Wire Harness, CON3 AD-PCB. ▪ Check/replace ADC Wire Harness, CON2 AD-PCB. ▪ Check/replace AD-PCB. ▪ Check/replace Load Cell Assembly.	2.1, 4.1, 6.1, 7.1 ~ 7.4, 12.3, 13.2, 13.5, 14.5, 19.5
	4. "Zero Range Error." For more than 45 seconds.	▪ Check for platter or platform obstruction. ▪ Remove all items from platter and cycle power. ▪ Reprogram all Weight settings & Span calibrate the scale. ▪ Check/replace ADC Wire Harness, CON2 AD-PCB. ▪ Check/replace AD-PCB. ▪ Check/replace Load Cell Assembly. ▪ Check/replace Main PCB.	2.1, 4.1, 6.1, 7.1 ~ 7.4, 12.3, 14.1 ~ 14.5 17.4, 19.5
	5.Scale beeps and "looks" like it is turned ON, but there is no display light.	▪ Check/replace Display Harness, J17/J18 M-PCB. ▪ Check/replace Display Stalk. ▪ Check/replace Wire Harness, CN21 PS. ▪ Check/replace Power Supply. ▪ Check/replace Main PCB.	2.1, 2.2, 4.1, 4.2, 11.2, 14.3, 14.4, 14.7, 17.3, 19.3, 19.6
Scale powers ON & goes to Zero.	1.Scale weight is inaccurate.	▪ Check for platter or platform obstruction. ▪ Remove all items from platter and cycle power. ▪ Reprogram all Weight settings & Span calibrate the scale. ▪ **Check *3."Load Cell Not Ready."***	2.1, 4.1, 6.1, 7.1 ~ 7.4, 12.3, 14.3, 14.5, 17.4, 19.5

	2.Printer prints but labels are blank.	▪ Make sure Print Head is in lock-down position. ▪ Make sure that there is thermal labels or paper in the printer and that the media is properly installed. ▪ Check/replace Media (Labels or paper.) ▪ Check/replace Wire Harness, J19 M-PCB. ▪ Check/replace TPH Wire Harness, J13 M-PCB. ▪ Check/replace Power Supply. ▪ Check/replace Thermal Print Head. ▪ Check/replace Printer Assembly.	4.3, 5.1, 10.3, 12.5, 13.4, 14.6, 14.3, 17.5, 18.2, 19.8
Scale powers ON & goes to Zero (cnt'd.)	3.Printer is missing an entire column (dot) of print on all labels.	▪ Clean Thermal Print Head. ▪ Check/replace Wire Harness, J19 M-PCB. ▪ Check/replace Thermal Print Head. ▪ Check/replace Media (Labels or paper.)	4.3, 5.1, 10.3, 12.5, 14.6, 14.6.3, 18.2, 19.8
	4.Printed data is faded in whole or in part.	▪ Check/replace Media (Labels or paper.) ▪ Clean Thermal Print Head. ▪ Lower the Printer Speed. ▪ Adjust Print Head. ▪ Check/replace Rubber Roller, Platent. ▪ Check/replace Wire Harness, J19 M-PCB. ▪ Check/replace Thermal Print Head.	4.3, 5.1, 10.3, 12.5, 14.4, 14.6, 14.6.3, 17.5, 18.2, 19.8
Label Printed OK except for a black or shaded box.	1. A black or shaded box appears in the place of a specific printed field (Total Price, Unit Price, etc.)	▪ A field on the label format is not completely within the label margins. Check/Reprogram the label format with the problem. ▪ A field on the label does not have enough space to print its data, i.e. trying to print a 6 digit Total Price to a label format that has a 5 digit total price. Check/Reprogram the label format with the problem.	

16.2 Additional Errors

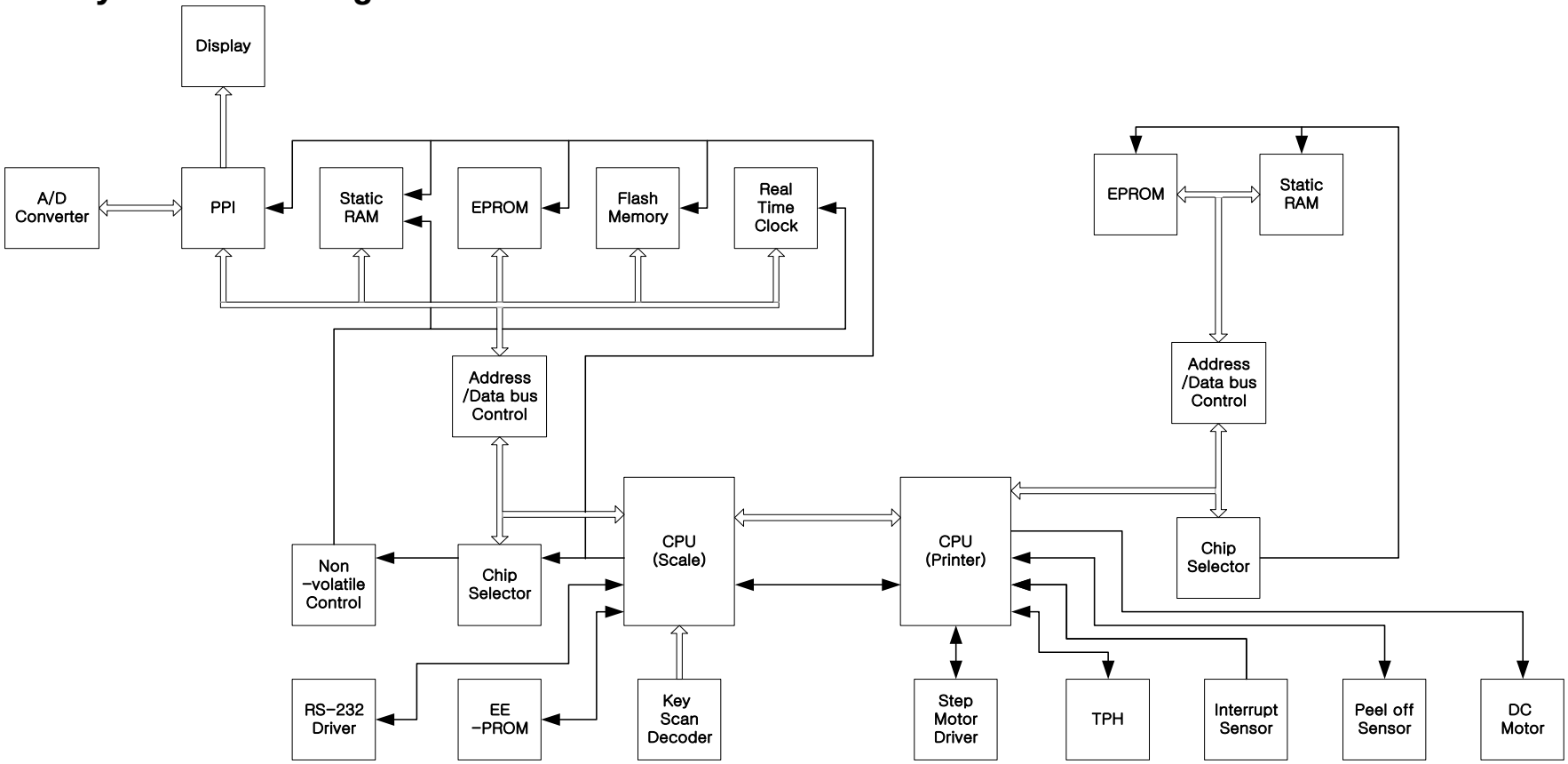
A/D Converter Error-Check connection between load cell and A/D converter
Replace load cell
Replace A/D converter

NV Fragmentation Error-Perform NV defragmentation in Calibration menu

Calibration Warning-Recalibrate Scale-**NOTE: often when this message appears You cannot get into Calibration Mode by holding ON/OFF while powering on. In this case, you must use the calibration switch on top of the main cpu.**

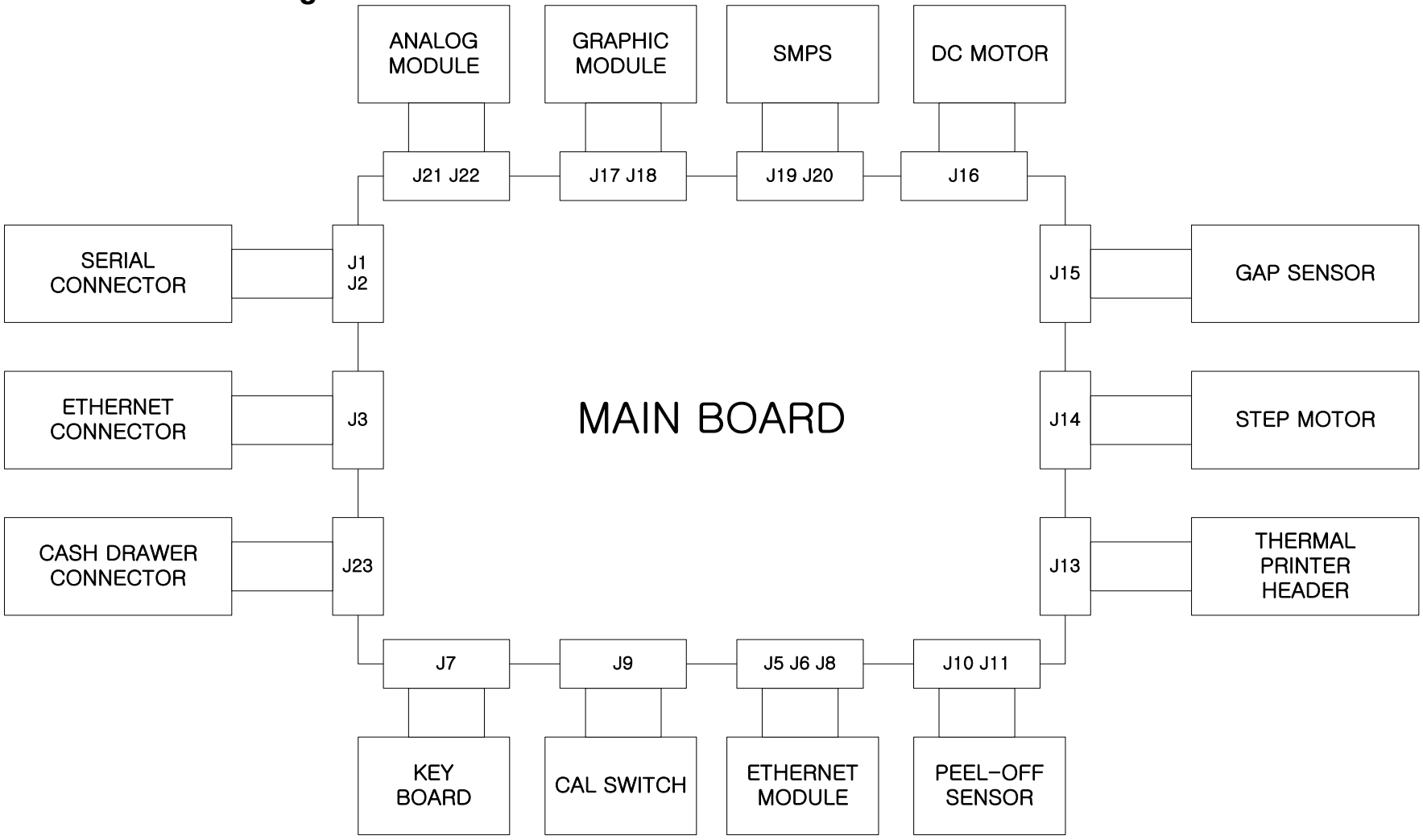
17 Diagrams

17.1 System Block Diagram



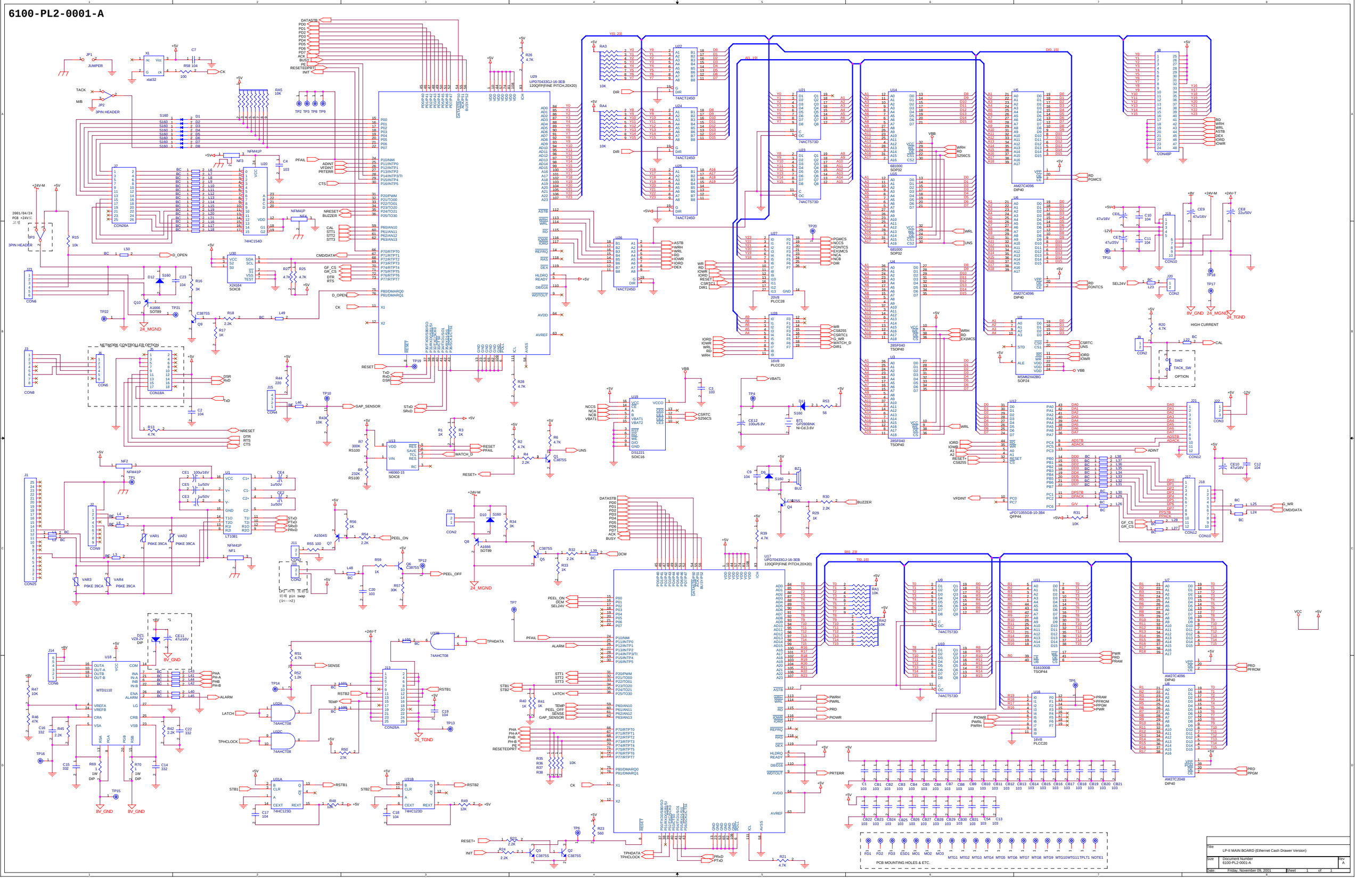
system block diagram

17.2 Connection Diagram



connection diagram

6100-PL2-0001-A



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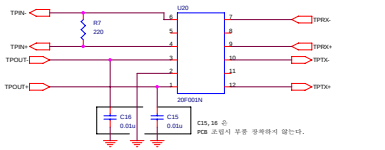
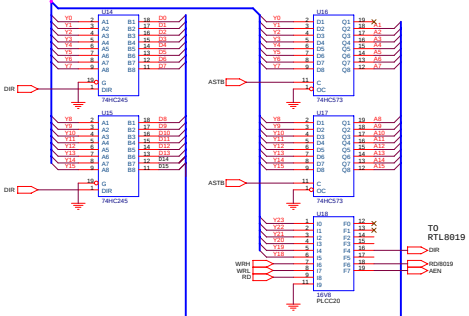
Size	Document Number: 6100-PL2-0001-A; Rev: A
Date	Friday, November 09, 2001
Sheet	1 of 1

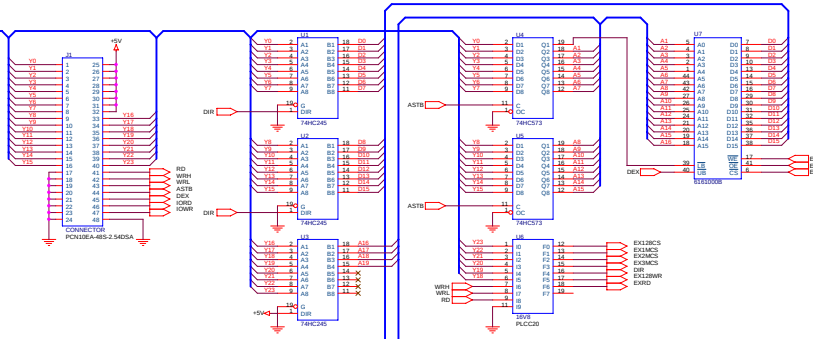
6100-PL2-0002-0 : ETHERNET + MEMORY
6100-PL2-0003-0 : ETHERNET

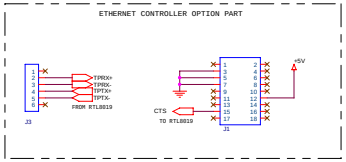
ETHERNET

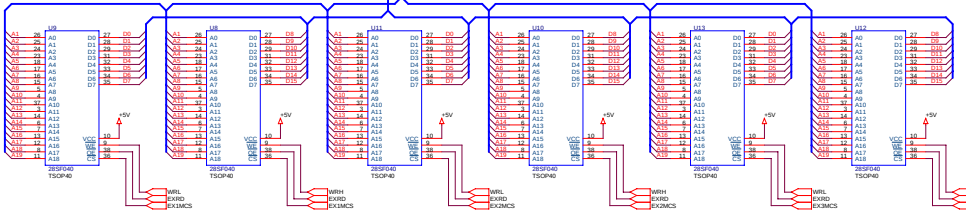
MEMORY

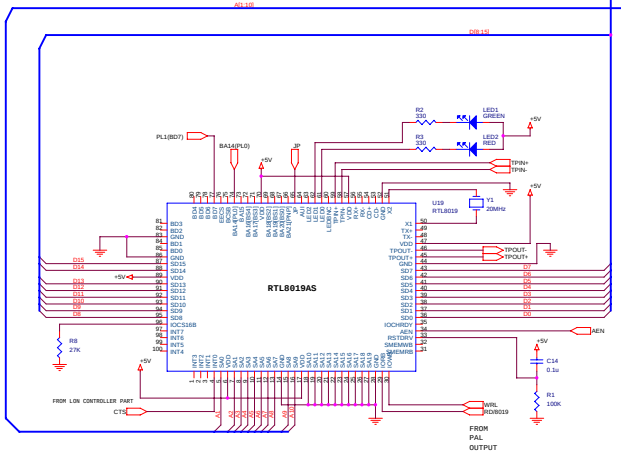


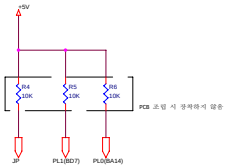


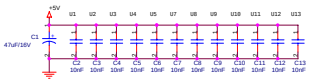












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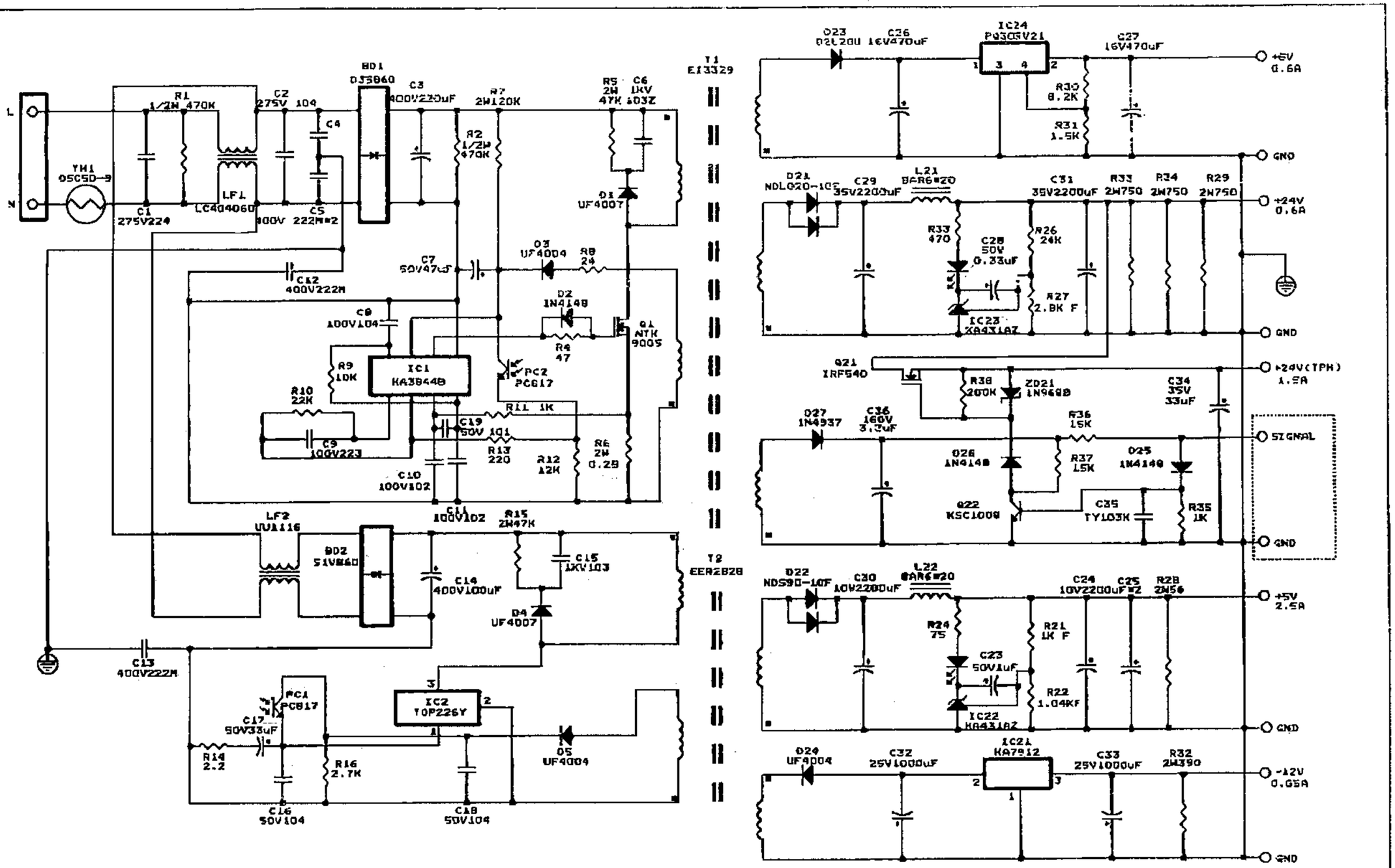
Size D	Document Number 6180-PL2-0002-0	Rev 0
Date: Friday, November 09, 2001	Sheet 1 of 1	



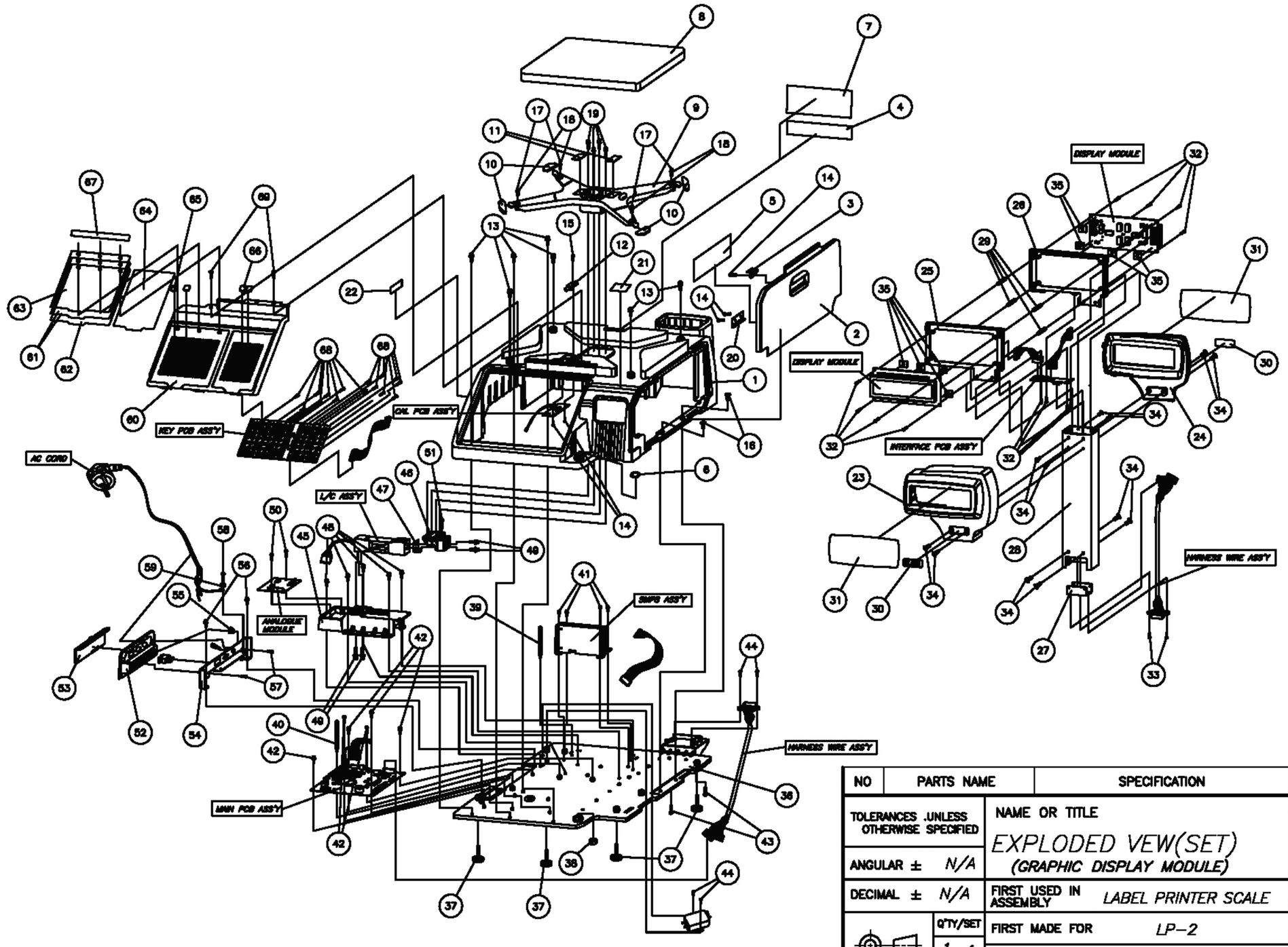
ITEM	PART NO	DESCRIPTION	Q'TY

SYM	REVISION	DATE	APVD	CHK

D/R	CHECK	APPD	ISSUED

TITLE	SCHEMATIC DIAGRAM
SCALE	
UNIT	
DATE	
MATERIAL	
MODEL NO	SIL1303C
DWG NO	1130301

MODEL NO.	PART NO.	REVISIONS REV	SYM	CONTENTS	DRAWN	CHECKED	APPROVED

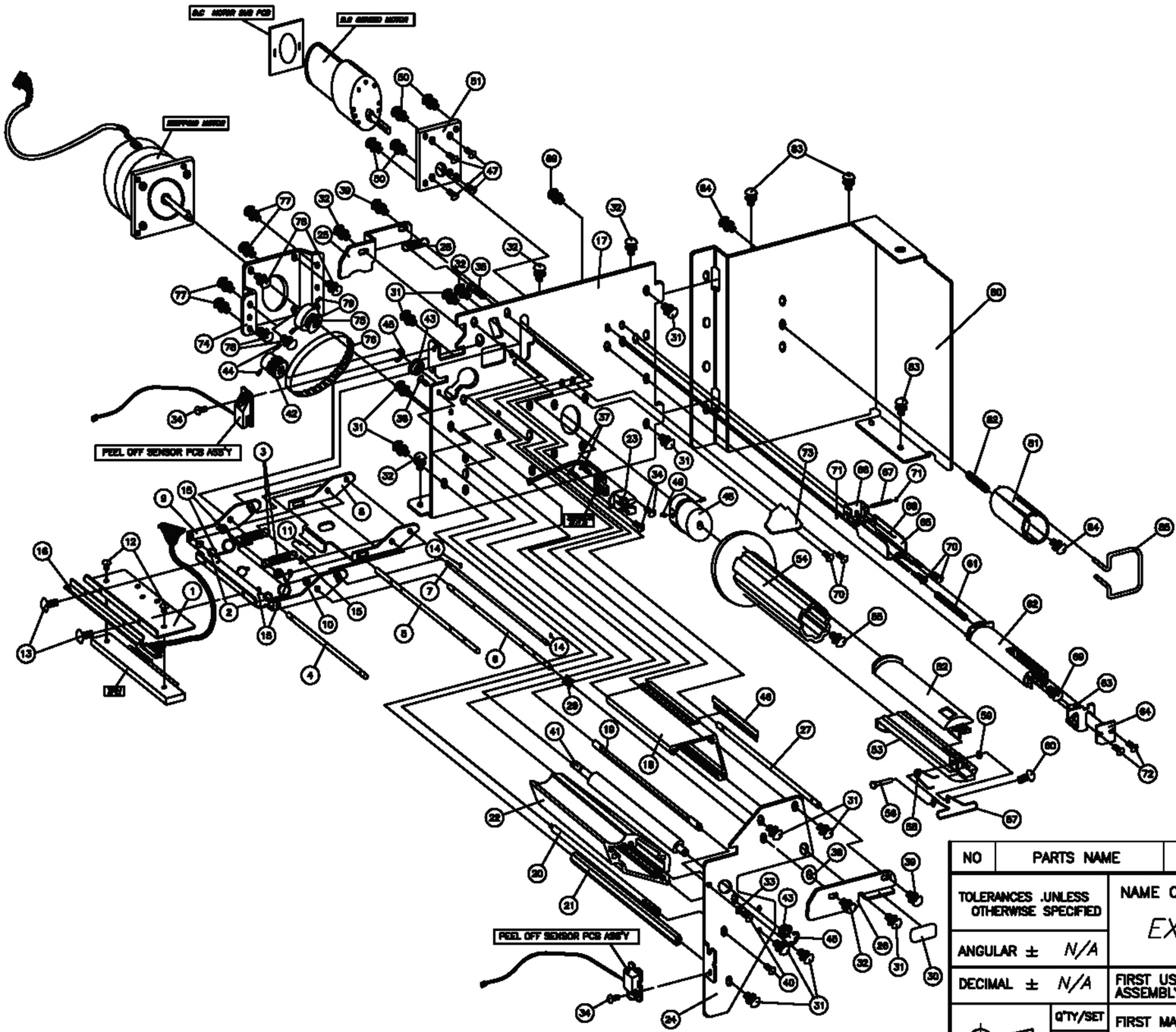


NO	PARTS NAME	SPECIFICATION	Q'TY	REMARK
TOLERANCES .UNLESS OTHERWISE SPECIFIED		NAME OR TITLE: EXPLODED VEW(SET) (GRAPHIC DISPLAY MODULE)	CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO,KOREA	
ANGULAR ± N/A				
DECIMAL ± N/A	FIRST USED IN ASSEMBLY	LABEL PRINTER SCALE	MATERIAL	N/A
Q'TY/SET 1/1	FIRST MADE FOR	LP-2	END FINISH	N/A
	CONTRACT OR CUSTOMER NO	WORLD WIDE	DO NOT SCALE DRAWING	DIMENSIONS ARE IN (MM).INCH

DRAWN	CHECKED	CHECKED	APPROVED	SCALE	DRAWING.PART NO.	REV
				F/S	3006-LP2-0000	00
. .20	. .20	. .20	. .20			

CAS FORM A3 (297mmx420mm)

MODEL NO.	PART NO.	REVISIONS REV	SYM	CONTENTS	DRAWN	CHECKED	APPROVED



NO	PARTS NAME	SPECIFICATION	Q'TY	REMARK
TOLERANCES .UNLESS OTHERWISE SPECIFIED		NAME OR TITLE: EXPLODED VIEW (MECHANISM)		CAS CORPORATION #19 KANAP-RI KWANGJEOK-MYON YANGJU-KUN KYUNGKI-DO,KOREA
ANGULAR ± N/A				
DECIMAL ± N/A		FIRST USED IN ASSEMBLY: LABEL PRINTER SCALE		MATERIAL: N/A
	Q'TY/SET: 1/1	FIRST MADE FOR: LP-2		END FINISH: N/A
		CONTRACT OR CUSTOMER NO: WORLD WIDE		DO NOT SCALE DRAWING; DIMENSIONS ARE IN (MM) INCH

DRAWN	CHECKED	CHECKED	APPROVED	SCALE	DRAWING.PART NO.	REV
				F/S	3004-LP2-0000	00
. .20	. .20	. .20	. .20			

CAS FORM A3 (297mmx420mm)

18 Part's List

18.1 ELECTRICAL

18.1.1 ETHERNET MEMORY OPTION BOARD ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	6180-PL2-0002-0	ETHERNET MEMORY PCB	6180-PL2-0002-0(LP-II)	EA	1	
2	6202-IS0-6161-0	IC(SRAM)	KM6161000BLTI-7	EA	1	U7
3	6204-IS0-2804-0	IC(FLASH MEMORY)	SST28SF040-120-4C-EH	EA	6	U8~13
4	6216-IS0-1608-0	IC(GAL)	PALCE16V8H-25JC/4:LP II	EA	2	U6,18
5	6232-I00-001N-0	IC(ETHERNET TRANSFORME	YCL20F001N	EA	1	U20
6	6232-IS0-8019-0	IC(ETHERNET CONTROLLER	RTL8019AS(LP-2)NET'	EA	1	U19
7	6236-IS0-0245-A	IC(C-MOS)	74HC245D (LP-II)	EA	5	U1~3,14~15
8	6236-IS0-0573-A	IC (C-MOS)	74HC573D (LP-II)	EA	4	U4,5,16~17
9	6527-ID0-2200-0	CHIP RE' 1/10W	RR1220P-221D (220Ω)	EA	1	R7
10	6527-ID0-3300-0	CHIP RE' 1/10W	RR1220P-331D (330Ω)	EA	2	R2~3
11	6527-ID3-0270-0	CHIP RE' 1/10W	RR1220P-273D(27 kΩ)	EA	1	R8
12	6527-ID3-1000-0	CHIP RE' 1/10W	RR1220P-104D(100K)	EA	1	R1
13	6706-C16-0047-0	CHIP ELECTRIC CONDEN	47uF/16V Φ 6.3	EA	2	C1,24
14	6712-CHP-0103-0	CHIP CONDENSER	CL21F 103 KBNC	EA	22	C2~13,17~21
15	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 KBNC	EA	3	C14,22~23
16	7010-ZM0-2000-0	CRYSTAL	20MHz	EA	1	Y1
17	7232-DG0-0003-A	LED LAMP	ø3-GREEN	EA	1	LED1
18	7232-DR0-0003-0	LED LAMP	ø3-RED	EA	1	LED2
19	7810-C00-0040-A	PIN HEADER	2.54*18mm*40PIN	EA	1	J2~3
20	7813-C00-0048-0	SOCKET CONNECTOR	PCN10-48S-2.54DSA(LP-2	EA	1	J1
21	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*6-NI	EA	3	

18.1.2 PEEL OFF SENSOR PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	2001-A00-0017-0	HOUSING SENSOR	22*10 (LP-15)	EA	2	
2	2001-A00-0018-0	HOLDER SENSOR-A	11.9*7.5*ϕ 5(LP)emission	EA	1	
3	2001-A00-0019-0	HOLDER SENSOR-B	11.9*7.5*ϕ 5(LP)collection	EA	1	
4	2003-A00-0002-0	SENSOR PLATE	PVC22*10*1T(LP)	EA	2	
5	7235-D00-0002-0	IR-LED(emission)	CL2SLP,LP-2	EA	1	
6	7236-DPS-0020-0	PHOTO-TRANSISTOR	BVP-505AM4,KP5-Z151	EA	1	
7	7840-W00-0221-0	CONNECTOR WIRE	2P*210(LP-15)	EA	1	
8	7840-W00-0251-0	CONNECTOR WIRE	2P*510 (LP-15)	EA	1	

18.1.3 ETHERNET OPTION BOARD ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	6180-PL2-0003-0	ETHERNET PCB (LP-II)	6180-PL2-0003-0	EA	1	
2	6216-IS0-1608-0	IC(GAL)	PALCE16V8H-25JC/4:LP II	EA	1	U18
3	6232-I00-001N-0	IC(ETHERNET TRANSFORME	YCL20F001N	EA	1	U20
4	6232-IS0-8019-0	IC(ETHERNET CONTROLLER	RTL8019AS(LP-2)NET'	EA	1	U19
5	6236-IS0-0245-A	IC(C-MOS)	74HC245D (LP-II)	EA	2	U14~15
6	6236-IS0-0573-A	IC (C-MOS)	74HC573D (LP-II)	EA	2	U16~17
7	6527-ID0-2200-0	CHIP RE' 1/10W	RR1220P-221D (220Ω)	EA	1	R7
8	6527-ID0-3300-0	CHIP RE' 1/10W	RR1220P-331D (330Ω)	EA	2	R2~3
9	6527-ID3-0270-0	CHIP RE' 1/10W	RR1220P-273D(27 kΩ)	EA	1	R8
10	6527-ID3-1000-0	CHIP RE' 1/10W	RR1220P-104D(100K)	EA	1	R1
11	6706-C16-0047-0	CHIP ELECTRIC CONDEN	47uF/16V Φ 6.3	EA	1	C24
12	6712-CHP-0103-0	CHIP CONDENSER	CL21F 103 KBNC	EA	5	C17~21
13	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 KBNC	EA	3	C14,22~23
14	7010-ZM0-2000-0	CRYSTAL	20MHz	EA	1	Y1
15	7232-DG0-0003-A	LED LAMP	ø3-GREEN	EA	1	LED1
16	7232-DR0-0003-0	LED LAMP	ø3-RED	EA	1	LED2
17	7810-C00-0040-A	PIN HEADER	2.54*18mm*40PIN	EA	1	J2~3
18	7813-C00-0048-0	SOCKET CONNECTOR	PCN10-48S-2.54DSA(LP-2	EA	1	J1
19	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*6-NI	EA	2	

18.1.4 ANALOG MODULE ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	1810-STC-0001-0	ANALOG PLATE	CAM01	EA	1	
2	6121-PMD-0100-0	ANALOG MODULE PCB	6121-PMD-0100-0(AP)	EA	1	
3	6236-IS0-4011-0	IC(D-MOS-GATE)	UPD 4011BG	EA	1	
4	6236-IS0-4066-0	IC(ANALOG S/W)	UPD 4066BG	EA	1	
5	6240-IS0-0177-0	IC(OP-AMP)	OP-177GS	EA	1	
6	6240-IS0-4072-0	IC(OP-AMP)	UPC 4072G2	EA	2	
7	6281-I00-1504-0	CHIP TRANSISTOR	KTA1504 SY	EA	3	
8	6294-ICP-0181-0	CHIP DIODE	KDS 181	EA	1	
9	6527-ID0-1000-0	CHIP RE' 1/10W	RR1220P-101D(100Ω)	EA	2	
10	6527-ID3-0022-0	CHIP RE' 1/10W	RR1220P-222D(2.2K)	EA	1	
11	6527-ID3-0100-0	CHIP RE' 1/10W	RR1220P-103D(10K)	EA	6	
12	6527-ID3-0499-0	CHIP RE' 1/10W	RR1220P-4992D(49.9K)	EA	2	
13	6527-ID3-1000-0	CHIP RE' 1/10W	RR1220P-104D(100K)	EA	4	
14	6540-LA3-0235-0	PRECISION RESISTOR	FLAY 23K500B	EA	2	
15	6550-RM0-0400-0	NETWORK RESISTOR	2B-35-ME16(1K/10K)	EA	1	
16	6702-CAP-0106-A	CHIP TANTAL	10MCS 106 MB2 TER	EA	1	
17	6702-CAP-0685-0	CHIP TANTAL	16MCS 685 MB TER	EA	2	
18	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 KBNC	EA	10	
19	6720-CAP-0105-A	POLYESTER-CONDENSER	1UF/63V-J(BOX)	EA	1	
20	6720-CAP-0474-A	POLYESTER-CONDENSER	0.47UF/63V-J(BOX)	EA	3	
21	6722-CAP-0104-B	P.P-CAPACITOR(MKP-4)	0.1uF/400VDC/5%/15mm	EA	1	
22	6800-F00-0220-0	EMI FILTER	220PF(TDK)	EA	2	
23	7810-C00-9295-0	CONNECTOR	FW0254-30	EA	1	

18.1.5 ANALOG PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	6120-PL2-1001-0	ANALOG PCB	6120-PL2-1001-0(LP-II)	EA	1	
2	6200-IS0-8951-0	IC(CPU)	AT89C51-16QC	EA	1	
3	6210-IS0-6052-0	IC(RESET)	H6052 V1 (SOT223)	EA	1	
4	6236-IS0-0245-A	IC(C-MOS)	74HC245D (LP-II)	EA	1	
5	6527-ID3-0100-0	CHIP RE' 1/10W	RR1220P-103D(10K)	EA	8	
6	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 KBNC	EA	2	
7	6712-CHP-0200-0	CHIP CONDENSER	CL21C 200 JBNC(20PF)	EA	2	
8	6S20-PL2-1001-0	ANALOG PCB INSERT	6120-PL2-1001-0(LP-II)	EA	1	
9	7010-ZM0-2400-0	CRYSTAL	24MHz	EA	1	
10	7801-CLW-0003-0	CONNECTOR(WAFER)	LW 0640-03	EA	1	
11	7801-CLW-0012-0	CONNECTOR(WAFER)	LW 0640-12	EA	1	
12	7808-CGD-0005-0	CONNECTOR(WAFER)	1143-05(GOLD)	EA	1	

18.1.6 BODY ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	6155-PL2-0035-A	DC MOTOR SUB PCB	6155-PL2-0035-A	EA	1	
2	6190-PL2-1303-0	SMPS	SIL1303C(LP-II)	EA	1	
3	6400-TPH-2003-0	T.P.H(ROHM) 80mm	KF2003-GD40C(GD35B)	EA	1	
4	6450-TMT-0200-B	STEPPING MOTOR	4S56R-022N46S	EA	1	
5	6450-TMT-0550-0	D.C GEARED MOTOR	L-550(LP-II)	EA	1	
6	6531-CMT-0200-0	RESISTOR CEMENT	20Ω (5W)	EA	1	
7	6720-CAP-0105-B	POLYESTER-CONDENSER	1.0UF/250V(105J)KA	EA	1	
8	6830-F00-0040-A	NOISE FILTER	CA5-V32(LP-II UL,	EA	1	
9	7560-PAC-0008-0	AC CORD	LVD	EA	1	
10	7600-SOF-2103-0	ON/OFF S/W	WZ231(LP-II)	EA	1	
11	7620-S06-3000-0	FUSE	3A/250V Φ 6 UL,CSA(LP)	EA	1	
12	7630-S00-0001-0	FUSE HOLDER	FH-01(LOCK-TYPE)	EA	1	
13	7642-S00-0060-0	METAL CLAMP	6N	EA	3	
14	7720-GND-0040-0	TERMINAL	Protective GND Terminal	EA	1	
15	7810-C00-0001-0	WIRE NUT CONNECTOR	71B	EA	4	
16	7832-W00-3838-A	D-SUB ASS'Y WIRE(M)	24P*(8+10)P*380(LP-II)	EA	1	
17	7832-W00-3938-A	D-SUB ASS'Y WIRE(F)	18P*(10+12)P*380(LP-II	EA	1	
18	7840-W00-0221-0	CONNECTOR WIRE	2P*210(LP-15)	EA	1	
19	7840-W00-0226-0	CONNECTER WIRE	2P*260(LP-II)	EA	1	
20	7840-W00-0231-0	CONNECTER WIRE	UL,CE 1P*200(LPII,WHITE)	EA	1	
21	7840-W00-0232-0	CONNECTER WIRE	UL,CE 1P*200(LPII,BLACK)	EA	1	
22	7840-W00-0312-0	CONNECTER WIRE	3P*3P*120(LP-II)	EA	1	
23	7840-W00-0440-A	CONNECTER WIRE	2P*2P*400(LP-II)	EA	1	
24	7840-W00-0640-0	CONNECTER WIRE	3P*2P*320(LP-II)	EA	1	
25	7840-W00-2035-0	CONNECTER WIRE	10P*10P*350(LP-II)	EA	1	
26	7850-W00-2413-0	FLAT CABLE CONNECTOR	12P*12P*130(LP-II)	EA	1	
27	7850-W00-4030-0	FLAT CABLE CONNECTOR	20P*20P*300(LP-II)	EA	1	
28	7850-W00-5217-0	FLAT CABLE CONNECTOR	26P*26P*170	EA	2	
29	7850-W00-5227-0	FLAT CABLE CONNECTOR	26P*26P*270(LP-II)	EA	1	
30	7860-GND-0151-0	EARTH TERMINAL ASS'Y	150mm(UL,CE,CSA)YEL'/GREEN	EA	2	
31	9400-A00-0024-0	TAPE (INSULATOR)	88*19*0.13t (TESA)	EA	1	
32	2600-A00-0069-0	SPACER	88*17*2t(LP-2)	EA	1	
33	7860-GND-1501-0	GROUND TERMINAL ASS'Y	1500mm(UL,CSA,CE)YEL'/GREEN	EA	1	
34	7870-W00-0115-0	LEAD WIRE(LP-II)	1P*150mm(SLEEVE)WHITE	EA	1	

18.1.7 MAIN PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	QTY	REMARK
1	6100-PL2-0001-A	MAIN PCB (LP-II)	6100-PL2-0001-A	EA	1	
2	6200-IS0-0433-0	IC(CPU)	UPD70433GJ-16-3EB(V55)	EA	2	U17,29
3	6200-IS0-6242-0	IC(REAL TIME CLOCK)	MSM62X42BGS-K	EA	1	U2
4	6200-IS0-8255-0	IC(PPI)	UPD82C55,D71055GB	EA	1	U12
5	6202-IS0-1221-0	IC(NV RAM CONTROL)	DS1221S(SOIC16P)	EA	1	U19
6	6202-IS0-6161-0	IC(SRAM)	KM6161000BLTI-7	EA	1	U11
7	6202-IS0-6810-0	IC(SRAM)	KM681000BLG-7L	EA	2	U14,15
8	6203-I00-2048-0	IC(EP-ROM)	AM27C2048-90DC(M27C202	EA	1	U8
9	6203-I00-4096-0	IC(EP-ROM)	AM27C4096-95DC(M27C400	EA	3	U5,6,7
10	6204-IS0-2804-0	IC(FLASH MEMORY)	SST28SF040-120-4C-EH	EA	2	U3,4
11	6205-IS0-2416-0	IC(EEP-ROM)	AT24C164-10SC	EA	1	U30
12	6210-IS0-6060-0	IC(RESET)	H6060-15 (SOP)	EA	1	U13
13	6216-IS0-1608-0	IC(GAL)	PALCE16V8H-25JC/4:LP II	EA	2	U16,28
14	6216-IS0-2008-0	IC(GAL)	PALCE20V8H-15JC/4:LP II	EA	1	U27
15	6224-IS0-1110-0	CHIP TRANSISTOR	MTD 1110 (LP-II)	EA	1	U18
16	6232-IS0-0232-A	IC(INTERFACE)LP-II	HIN202ECB,MAX232ECWE	EA	1	U1
17	6236-IS0-0008-0	IC(C-MOS)	74HC08D	EA	1	U32
18	6236-IS0-0123-0	IC(C-MOS)	74HC123(SOP)	EA	1	U31
19	6236-IS0-0154-0	IC(C-MOS)	74HC154D (LP-II)	EA	1	U20
20	6236-IS0-0245-A	IC(C-MOS)	74HC245D (LP-II)	EA	4	U22,24,25,26
21	6236-IS0-0573-A	IC (C-MOS)	74HC573D (LP-II)	EA	4	U9,10,21,23
22	6260-I00-0040-0	IC-SOCKET	40 PIN	EA	4	
23	6281-I00-1504-0	CHIP TRANSISTOR	KTA1504 SY	EA	1	Q7
24	6281-I00-1666-0	CHIP TRANSISTOR	KTA1666	EA	2	Q8,10
25	6281-I00-3875-0	CHIP TRANSISTOR	KTC3875 SY	EA	7	Q1~6,9
26	6292-IZE-4738-0	ZENER-DIODE	8.2V/1W	EA	1	DZ1
27	6294-ICP-0160-0	CHIP DIODE	KDS 160 (SMD)	EA	12	D1~11,12
28	6513-CJ0-0010-0	RESISTOR 1W	CFR 1Ω (±5%)	EA	2	R69,70
29	6527-ID0-0560-0	CHIP RE' 1/10W	RR1220P-560D(56Ω)	EA	1	R53
30	6527-ID0-1000-0	CHIP RE' 1/10W	RR1220P-101D(100Ω)	EA	2	R58,55
31	6527-ID0-2200-0	CHIP RE' 1/10W	RR1220P-221D (220Ω)	EA	1	R44
32	6527-ID0-5600-0	CHIP RE' 1/10W	RR1220P-561D(560Ω)	EA	1	R23
33	6527-ID3-0010-0	CHIP RE' 1/10W	RR1220P-102D(1K)	EA	9	R1,3,17,29,33,
						40,41,56,59
34	6527-ID3-0012-0	CHIP RE' 1/10W	RR1220P-122D(1.2 kΩ)	EA	1	R52
35	6527-ID3-0022-0	CHIP RE' 1/10W	RR1220P-222D(2.2K)	EA	9	R4,18,22,24,30,
						32,42,45,54
36	6527-ID3-0030-0	CHIP RE' 1/10W	RR1220P-302D(3 kΩ)	EA	2	R34,16
37	6527-ID3-0047-0	CHIP RE' 1/10W	RR1220P-472D(4.7 kΩ)	EA	11	R2,6,13,20,21,
						25~28,39,51
38	6527-ID3-0100-0	CHIP RE' 1/10W	RR1220P-103D(10K)	EA	8	R31,35~38,47,
						15,43
39	6527-ID3-0120-0	CHIP RE' 1/10W	RR1220P-123D(12 kΩ)	EA	2	R48,49
40	6527-ID3-0270-0	CHIP RE' 1/10W	RR1220P-273D(27 kΩ)	EA	1	R50
41	6527-ID3-0300-0	CHIP RE' 1/10W	RR1220P-303D(30 kΩ)	EA	1	R57
42	6527-ID3-0470-0	CHIP RE' 1/10W	RR1220P-473D(47 kΩ)	EA	1	46
43	6527-ID3-2320-0	CHIP RE' 1/10W	RR1220R-2323D(232 kΩ)	EA	1	R5(230K)
44	6527-ID3-3000-0	CHIP RE' 1/10W	RR1220R-304D(300 kΩ)	EA	1	R7
45	6550-M09-0103-0	NETWORK RESISTOR	M9-1-103J(LP-7)	EA	5	RA1~5
46	6670-T00-0102-0	INDUCTANCE	BLM 21 102S (LP-II)	EA	52	L1~46,48~50,
						100~102
47	6706-C16-0047-0	CHIP ELECTRIC CONDEN	47uF/16V Φ 6.3	EA	4	CE6,9,10,11
48	6706-C16-0100-0	CHIP ELECTRIC CONDEN	100uF/16V Φ 6.3	EA	1	CE1
49	6706-C25-0047-0	CHIP ELECTRIC CONDEN	47uF/25V Φ 6.3	EA	1	CE7
50	6706-C50-0001-0	CHIP ELECTRIC CONDEN	1uF/50V Φ 4.0	EA	4	CE2~5

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
51	6706-C50-0022-0	CHIP ELECTRIC CONDEN	22uF/50V Φ 6.3	EA	1	CE8
52	6706-C68-0100-0	CHIP ELECTRIC CONDENSE	100uF/6.8V Φ 6.3	EA	1	CE12
53	6712-CHP-0103-0	CHIP CONDENSER	CL21F 103 KBNC	EA	37	CB1~31,C1,3,
						4,13,54
54	6712-CHP-0104-0	CHIP CONDENSER	CL21F 104 KBNC	EA	10	C2,7,9,10,11,12,
						17~19,23
55	6712-CHP-0332-0	CHIP CONDENSER	CL21F 332 MBNC	EA	4	C14,15,16,22
56	6800-F00-0204-0	EMI FILTER	NFM41P11C204 4516P13C2	EA	4	NF1~4
57	6810-F00-0001-0	TRANSIENT SUPPRESSOR	P6KE 39CA(LP-II)	EA	4	VAR1~4
58	7002-Z00-0050-0	PIEZO BUZZER	SL1I-12FsP	EA	1	BZ1
59	7010-ZM0-3200-A	OSILATOR	SCO 060 32.000MHZ(LP-2	EA	1	X1
60	7520-P00-0280-0	NI-CD BATTERY	GP280(320)BVH3A2H	EA	1	BT1
61	7600-STA-1902-0	TACT S/W	11902(DJTA-1102)	EA	1	SW2
62	7720-GND-0010-0	TESTER POINT	LC-2-GY (MAC-8)	EA	1	TP11
63	7801-CLW-0003-0	CONNECTOR(WAFER)	LW 0640-03	EA	1	J22
64	7801-CLW-0010-0	CONNECTOR(WAFER)	LW 0640-10	EA	1	J18
65	7801-CLW-0010-A	CONNECTOR(WAFER)	YW396-10V	EA	1	J19
66	7801-CLW-0012-0	CONNECTOR(WAFER)	LW 0640-12	EA	2	J17,21
67	7805-CCN-6702-0	CONNECTOR(WAFER)	5267-02	EA	5	J9,10,11,16,20
68	7805-CCN-6704-0	CONNECTOR(WAFER)	5267-04	EA	1	J15
69	7805-CCN-6706-0	CONNECTOR(WAFER)	5267-06	EA	1	J14
70	7810-C00-0008-0	MODULA JACK	8P(LP-II)ETHERNET JACK	EA	1	J3
71	7810-C00-9299-0	CONNECTOR	929974-40 (FEMALE)	EA	1	J5,6
72	7810-CHD-0006-0	CONNECTOR(WAFER)LP2	LAD1140-6	EA	1	J23
73	7812-C00-0009-B	D-SUB CONNECTOR	RD9S	EA	1	J2
74	7812-C00-0025-B	D-SUB CONNECTOR	D25S	EA	1	J1
75	7813-C00-0020-0	SOCKET CONNECTOR	5332-20P(HIF-3FB-20PA-	EA	1	J7
76	7813-C00-0026-0	SOCKET CONNECTOR	5332-26P LP- II	EA	1	J13
77	7813-C00-0048-A	SOCKET CONNECTOR	PCN10-48P-2.54DSA(LP-2	EA	1	J8
78	7860-GND-0050-0	GROUND WIRE	50mm (Y/G) LP-II	EA	1	
79	1507-A00-0318-0	MACHINE SCREW(CON)	M3*18(LP-2)	EA	3	
80	1540-MSU-0300-0	NUT (HEX)	M3*05 -SUS	EA	3	

18.1.8 CAL PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	6151-PS2-0071-0	CAL PCB	6151-PS2-0071-0	EA	1	
2	7600-SLD-0002-0	SLIDE S/W	INCA-2(DJMM-12V)	EA	1	
3	7840-W00-0240-0	CONNECTOR WIRE	2P*400 (LP-15)	EA	1	

18.1.9 DISPLAY PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	6110-PL2-3901-A	DISPLAY PCB	6110-PL2-3901-A(LP-II)	EA	1	
2	6800-F00-3550-0	FERRITE BEAD	ATS3550L(E-TECK)	EA	12	
3	6S10-PL2-3901-0	SUB PCB INSERT (GRAPH	6110-PL2-3901-0	EA	1	
4	7202-D00-1045-0	GRAPHIC MODULE(VFD)	GP1045A02A (LP-II)	EA	2	
5	7801-CLW-0008-0	CONNECTOR(WAFER)	LW 0640-08	EA	1	
6	7801-CLW-0010-0	CONNECTOR(WAFER)	LW 0640-10	EA	1	
7	7813-C00-0026-0	SOCKET CONNECTOR	5332-26P LP- II	EA	2	

18.1.10 AP SENSOR PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	6154-PLP-0182-0	SENSOR-1 PCB	6154-PLP-0182-0	EA	1	
2	7236-DPS-0203-0	PHOTO INTRERRUPTER	OPSI203UITL(LP-1)	EA	1	
3	7840-W00-0418-0	CONNECTOR WIRE	4P*180(LP-15)	EA	1	

18.1.11 KEY PCB ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	6130-PL2-2001-0	KEY BOARD PCB	6130-PL2-2001-0(LP-II)	EA	1	
2	6S30-PL2-2001-0	KEY PCB INSERT	6130-PL2-2001-0(LP-II)	EA	1	
3	7600-STA-1103-A	TACT S/W	SKHCAD (LP-2)	EA	91	
4	7813-C00-0020-0	SOCKET CONNECTOR	5332-20P(HIF-3FB-20PA-	EA	1	

18.2 MECHANICAL

18.2.1 UPPER CASE ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	2004-A00-0021-A	UPPER COVER	425*450*152	EA	1	
2	2004-A00-0022-B	SIDE COVER	321*152*12	EA	1	
3	2011-A00-0002-0	SIDE LOCKER	18*18.5*16	EA	1	
4	1810-TP0-0033-0	SPEC PLATE	0.5t*189.8*29.8 ENGLISH	EA	1	
5	9020-LP2-0033-0	STICKER	LP-2	EA	1	
6	2010-A00-0011-0	W/GAGE COVER	ϕ 24.8*0.5t	EA	1	
7	2021-LP2-0033-0	SERVICE PAD	186.5*73.6*0.15t	EA	1	
8	1000-A00-0023-0	TRAY	403*261*15*1t	EA	1	
9	1100-A00-0029-A	PLATFORM	ALDC8 326*206*32	EA	1	
10	2600-A00-0018-0	PLATFORM RUBBER	NBR GRAY 30*23*10.1	EA	4	
11	2600-A00-0025-0	BUMPON	PUR 18*35*3.2t	EA	2	
12	1000-A00-0078-0	SEALING PLATE	SUS304 57.5*29.5*1t	EA	1	
13	1503-A00-0412-0	MACHINE SCREW (WPH)	M4*12	EA	7	
14	1510-A00-0308-0	TAPPING SCREW (PH)-1	3*8	EA	5	
15	1510-A00-0408-0	TAPPING SCREW (PH)-1	4*8	EA	1	
16	1501-MSU-0408-0	MACHINE SCREW (FH)	M4*8	EA	2	
17	1532-MSU-0515-0	WRENCH BOLT (ST)	M5*15	EA	4	
18	1540-MSU-0500-0	NUT (HEX)	M5	EA	4	
19	1535-MSU-0620-0	WRENCH BOLT (WA)	M6*20	EA	4	
20	1000-A00-0205-0	BRACKET HINGE	30*18.1*1t	EA	1	
21	9020-A00-0044-0	WARNING STICKER	LP-2	EA	1	
22	9020-LP0-0011-0	WARNING & FUSE STICKER	LP-2	EA	1	

18.2.2 DISPLAY CASE ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
23	2004-A00-0023-0	DISPLAY COVER (F)	52.5*269.5*178.5	EA	1	
24	2004-A00-0024-0	DISPLAY COVER (R)	21.6*276.75*175.75	EA	1	
25	1020-A00-0001-0	DISPLAY BRACKET(F)	235*126.5*10*1t	EA	1	
26	1020-A00-0002-0	DISPLAY BRACKET(R)	235*126.5*10*1t	EA	1	
27	1030-A00-0060-0	DISPLAY CONN.BRACKET	60*28*25.8*1.6t	EA	1	
28	1150-A00-0001-0	DISPLAY BAR	78.8*30.8	EA	1	
29	1210-A00-0024-0	DISPLAY POST	HEX.6*23*M3	EA	4	
30	1800-LP2-0033-0	NAME PLATE	LP-2 ENGLISH	EA	2	
31	2050-LP2-1533-3	DISPLAY COVER	LP-II-15 ENGLISH	EA	2	
32	1502-A00-0306-0	MACHINE SCREW (PH)	M3*6	EA	12	
33	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*6	EA	2	
34	1501-MSU-0306-0	MACHINE SCREW (FH)	M3*6	EA	12	
35	9020-A00-0048-0	STICKER (C)	12*12*0.25t	EA	8	
23	2004-A00-0023-0	DISPLAY COVER (F)	52.5*269.5*178.5	EA	1	
24	2004-A00-0024-0	DISPLAY COVER (R)	21.6*276.75*175.75	EA	1	
25	1020-A00-0001-0	DISPLAY BRACKET(F)	235*126.5*10*1t	EA	1	
26	1020-A00-0002-0	DISPLAY BRACKET(R)	235*126.5*10*1t	EA	1	
27	1030-A00-0060-0	DISPLAY CONN.BRACKET	60*28*25.8*1.6t	EA	1	
28	1150-A00-0001-0	DISPLAY BAR	78.8*30.8	EA	1	
29	1210-A00-0024-0	DISPLAY POST	HEX.6*23*M3	EA	4	
30	1800-LP2-0033-0	NAME PLATE	LP-2 ENGLISH	EA	2	
31	2050-LP2-1533-3	DISPLAY COVER	LP-II-15 ENGLISH	EA	2	
32	1502-A00-0306-0	MACHINE SCREW (PH)	M3*6	EA	12	
33	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*6	EA	2	
34	1501-MSU-0306-0	MACHINE SCREW (FH)	M3*6	EA	12	
35	9020-A00-0048-0	STICKER (C)	12*12*0.25t	EA	8	

18.2.3 BODY ASSY

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
36	1100-A00-0017-A	BODY	403.5*436*9	EA	1	
37	2610-A00-0008-B	FOOT	COND. NBR BLACK ϕ 41*42.5*M8	EA	4	
38	2022-A00-0004-0	W/L GAGE	ϕ 15*8 (S-2000)	EA	1	
39	1210-A00-0025-0	MAIN POST-A	HEX.10*M8*132	EA	1	
40	1210-A00-0075-0	MAIN POST-B	ϕ 10*132	EA	1	
41	1503-A00-0410-0	MACHINE SCREW (WPH)	M4*10	EA	4	
42	1502-A00-0408-0	MACHINE SCREW (PH)	M4*8	EA	6	
43	1502-MSU-0512-0	MACHINE SCREW (PH)	M5*12	EA	2	
44	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*6	EA	4	
36	1100-A00-0017-A	BODY	403.5*436*9	EA	1	
37	2610-A00-0008-B	FOOT	COND. NBR BLACK ϕ 41*42.5*M8	EA	4	
38	2022-A00-0004-0	W/L GAGE	ϕ 15*8 (S-2000)	EA	1	
39	1210-A00-0025-0	MAIN POST-A	HEX.10*M8*132	EA	1	
40	1210-A00-0075-0	MAIN POST-B	ϕ 10*132	EA	1	
41	1503-A00-0410-0	MACHINE SCREW (WPH)	M4*10	EA	4	
42	1502-A00-0408-0	MACHINE SCREW (PH)	M4*8	EA	6	
43	1502-MSU-0512-0	MACHINE SCREW (PH)	M5*12	EA	2	
44	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*6	EA	4	

18.2.4 L/C BRACKET ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
45	1100-A00-0035-0	L/C BRACKET	LP-2	EA	1	
46	1100-A00-0036-0	PLATFORM BRACKET	LP-2	EA	1	
47	1030-A00-0062-0	CELL LIMIT PLATE	38*45*20*2t	EA	1	
48	1503-A00-0412-0	MACHINE SCREW (WPH)	M4*12	EA	5	
49	1535-MSU-0620-0	WRENCH BOLT (WA)	M6*20	EA	4	
50	1502-A00-0408-0	MACHINE SCREW (PH)	M4*8	EA	2	
51	1530-MSU-0620-0	WRENCH BOLT	M6*20	EA	1	

18.2.5 POT ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
52	2004-A00-0025-A	CONTROL HOLDER	181.5*77*34	EA	1	
53	2004-A00-0026-A	CONTROL DOOR	146*39*18	EA	1	
54	1030-A00-0063-0	CONTROL BRACKET	215*57*30*1.6t	EA	1	
55	7650-S00-0604-0	CORD STOPPER	SR-6N-4	EA	1	
56	1503-A00-0408-0	MACHINE SCREW (WPH)	M4*8	EA	2	
57	1512-MPN-0308-0	TAPPING SCREW (PH)-2	3*8	EA	2	
58	1502-MPN-0406-0	MACHINE SCREW (PH)	M4*6	EA	1	
59	1552-A00-0400-0	WASHER (OTO)	ϕ 4	EA	1	

18.2.6 FRONT COVER ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
60	2004-A00-0027-A	FRONT COVER	LP-2(TACTS)	EA	1	
61	2200-LP2-0011-0	PLU PAD	LP-2	EA	1	
62	2200-LP2-0011-2	DATA PAD	LP-2	EA	1	
63	2200-A00-0139-A	PLU PAD COVER	LP-2	EA	1	
64	2200-LP2-0011-1	NUMBER PAD	LP-2	EA	1	
65	2011-A00-0003-0	KEY KNOB (A)	11.7*12.2*5.9	EA	89	
66	2011-A00-0004-A	KEY KNOB (B)	13.4*6.1	EA	2	
67	2002-A00-0003-0	OVERLAY STOPPER	153*8*8.5	EA	1	
68	1510-A00-0306-0	TAPPING SCREW (PH)-1	3*6	EA	15	
69	1515-MSU-0312-0	TAPPING SCREW (FH)-1	3*12	EA	2	

18.3 MECHANISM

18.3.1 TPH ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	1000-A00-0069-A	TPH BRACKET HOLDER	91*27*8.9*1t	EA	1	
2	1590-A00-0016-0	PRESSURE SPRING	21*13*ϕ 1.2	EA	2	
3	1590-A00-0017-0	PRESSURE BRACKET SPRING	ϕ 0.6*5.3*ϕ 5.8	EA	2	
4	1210-A00-0026-0	TPH BRK SHAFT	ϕ 5*99	EA	1	
5	1210-A00-0027-A	PRESSURE SHAFT	ϕ 5*114	EA	1	
6	1210-A00-0028-0	GUIDE BRACKET SHAFT	ϕ 6*109.6	EA	1	
7	1210-A00-0029-0	UP DOWN SHAFT	ϕ 4*110	EA	1	
8	1000-A00-0070-0	PRESSURE BRACKET	84.4*19.6*1.2t	EA	1	
9	1000-A00-0071-0	TPH BRACKET	95*66*25.5*1.2t	EA	1	
10	1210-A00-0038-0	GUIDE SHAFT SPACER	ϕ 9*ϕ 6.2*4	EA	1	
11	9020-A00-0041-0	HEAD PUSH STICKER	30*16 ENGLISH	EA	1	
12	1502-MPN-0304-0	MACHINE SCREW (PH)	M3*4	EA	2	
13	1502-MSU-0306-0	MACHINE SCREW (PH)	M3*6	EA	2	
14	1561-MSU-0300-0	E-RING	ϕ 3*ϕ 7*0.6t	EA	2	
15	1561-MSU-0400-0	E-RING	ϕ 4*ϕ 9*0.6t	EA	5	
16	1000-A00-0107-0	PAPER CUTTER	85.5*12.3*6*0.5t	EA	1	

18.3.2 MAIN BRACKET ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
17	1030-A00-0057-0	MAIN BRACKET	197.5*138*20*2t	EA	1	
18	1150-A00-0002-A	HEAD FRAME	101*47.5*47.6	EA	1	
19	1210-A00-0077-0	PAPER CUT SHAFT	ϕ 7*102.7*5*M3	EA	1	
20	1210-A00-0031-0	REWIND GUIDE SHAFT	ϕ 6*105*M3	EA	1	
21	1210-A00-0032-0	SIDE BRK SUPPORT	HEX.10*101*M4	EA	1	
22	1150-A00-0003-0	LOWER FRAME	101*35.7*44.7	EA	1	
23	2010-A00-0003-0	SENSOR HOUSING	22.5*29*33	EA	1	
24	1000-A00-0073-0	SIDE BRACKET	135.2*86.7*2t	EA	1	
25	1000-A00-0074-0	OPEN LEVER (L)	77.3*24.3*9.5	EA	1	
26	1000-A00-0075-0	OPEN LEVER (R)	76.3*24.2*7.5*1.5t	EA	1	
27	1210-A00-0033-0	OPEN LEVER SHAFT	ϕ 6*118*M4	EA	1	
28	1590-A00-0018-0	OPEN LEVER SPRING	ϕ 0.6*ϕ 5.8*10	EA	1	
29	1590-A00-0028-0	COIL SPRING	ϕ 0.8*ϕ 7.2*5.5	EA	1	
30	9020-A00-0042-0	OPEN LEVER STICKER	25*9 ENGLISH	EA	1	
31	1503-A00-0408-0	MACHINE SCREW (WPH)	M4*8	EA	12	
32	1503-A00-0410-0	MACHINE SCREW (WPH)	M4*10	EA	5	
33	1550-MSU-0305-0	WASHER (FLAT)	3*6*0.5	EA	1	
34	1502-A00-0306-0	MACHINE SCREW (PH)	M3*6	EA	4	
35	1210-A00-0034-A	HEAD FRAME PIN	HEX.5*15.5*M4	EA	2	
36	1501-MSU-0306-0	MACHINE SCREW (FH)	M3*0.5*6	EA	1	
37	1515-MSU-0312-0	TAPPING SCREW (FH)-1	3*12	EA	2	
38	2012-A00-0002-0	TEFRON WASHER	ϕ 14.5*ϕ 6.1*0.5t	EA	1	
39	1503-A00-0412-0	MACHINE SCREW (WPH)	M4*12	EA	2	
40	1502-MSU-0306-0	MACHINE SCREW (PH)	M3*6	EA	2	
41	2620-A00-0023-A	SHAFT SILICON RUBBER	ϕ 14.2*ϕ 7*125.3	EA	1	
42	1123-A00-0006-0	FEED GEAR	Z:28*15.5 M4	EA	1	
43	1580-A00-0002-0	BEARING	MF117ZZS	EA	2	
44	1532-MSU-0406-0	WRENCH BOLT (ST)	M4*0.7*6	EA	2	
45	1561-MSU-0600-0	E-RING	ϕ 6*ϕ 12*0.6t	EA	2	
46	2400-A00-0001-A	BRUSH	100*15*0.35t	EA	1	

18.3.3 REWINDER ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
47	1502-MSU-0306-0	MACHINE SCREW (FH)	M3*6	EA	4	
48	1210-A00-0066-0	REWIND JOINT	ϕ 26*ϕ 28*33.5	EA	1	
49	1532-MST-0410-0	WRENCH BOLT (ST)	M4*0.7*10	EA	2	
50	1503-A00-0408-0	MACHINE SCREW (WPH)	M4*8	EA	4	
51	1030-A00-0115-0	REWIND MOTOR BRACKET	51*38*4t	EA	1	
52	2011-A00-0009-0	REWIND HOLDER (B)	ϕ 40*46*40*107	EA	1	
53	2011-A00-0008-0	REWIND HOLDER (A)	ϕ 40*46*40*107	EA	1	
54	2011-A00-0007-0	REWIND SUPPORT	91.5*ϕ 34*ϕ 56	EA	1	
55	1503-A00-0412-0	MACHINE SCREW (WPH)	M4*12	EA	1	
56	1210-A00-0067-0	FIXING ROD	HEX ϕ 8*ϕ 5*21.3	EA	1	
57	1590-A00-0025-0	PULLING WIRE	70*9*18.5*ϕ 1.8	EA	1	
58	1590-A00-0026-0	REWIND TORSION SPRING	ϕ 6*14*10*ϕ 1.2	EA	1	
59	1210-A00-0069-0	REWIND HOLDER SPACER	ϕ 9*ϕ 6*2	EA	1	
60	1505-MST-0410-0	MACHINE SCREW (TH)	M4*0.7*10 TEFRON-COATING	EA	1	

18.3.4 PAPER GUIDE ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
61	1210-A00-0037-0	SUPPORT	HEX.6*48.4*M4	EA	1	
62	2000-A00-0068-0	PAPER GUIDE HOUSING	30*15*97.5	EA	1	
63	2011-A00-0006-0	PAPER GUIDE	36*16.5	EA	1	
64	1000-A00-0077-0	PAPER GUIDE LOCKER	24*17*0.8t	EA	1	
65	1000-A00-0045-0	PAPER PRESSURE	24.5*61*19.8*0.8t	EA	1	
66	1000-A00-0046-0	SUPPORT PRESSURE	22*16.8*13.8*0.8t	EA	1	
67	1210-A00-0020-0	SHAFT PRESSURE	ϕ 4*28.5	EA	1	
68	1590-A00-0027-0	TORSION SPRING	19.6*47.6*ϕ 1	EA	1	
69	1503-A00-0412-0	MACHINE SCREW (WPH)	M4*0.7*12	EA	2	
70	1502-MPN-0306-0	MACHINE SCREW (PH)	M3*0.5*6	EA	2	
71	1561-MSU-0300-0	E-RING	ϕ 3*ϕ 7*0.6t	EA	2	
72	1512-MSU-0306-0	TAPPING SCREW (PH)-2	3*6	EA	2	
73	1000-A00-0116-0	PAPER GUIDE PLATE	41.9*43.3*1t	EA	1	

18.3.5 STEPPING MOTOR ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
74	1030-A00-0059-0	MOTOR BRACKET	83*57*16*2t	EA	1	
75	1123-A00-0007-0	MOTOR PULLEY	ϕ 17*14*M4 Z:16	EA	1	
76	2634-A00-0003-0	TIMING BELT	B85 MXL	EA	1	
77	1503-A00-0408-0	MACHINE SCREW (WPH)	M4*0.7*8	EA	4	
78	1503-A00-0410-0	MACHINE SCREW (WPH)	M4*0.7*10	EA	4	
79	1532-MSU-0406-0	WRENCH BOLT (ST)	M4*0.7*6	EA	2	

18.3.6 ROLL BRACKET ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
80	1030-A00-0058-0	ROLL BRACKET	138*141.3*2t	EA	1	
81	2000-A00-0065-0	ROLL PAPER FEED	ϕ 35*89	EA	1	
82	1210-A00-0036-0	ROLL POST	9*30*M4	EA	1	
83	1503-A00-0410-0	MACHINE SCREW (WPH)	M4*10	EA	3	
84	1503-A00-0412-0	MACHINE SCREW (WPH)	M4*12	EA	2	
85	1200-A00-0009-0	ROLL BAND	ϕ 4*74*45*29	EA	1	

18.3.7 C/T BOX ASS'Y

NO	PART-NO	PART NAME	SPECIFICATION	UT	Q'TY	REMARK
1	9205-AS0-0002-0	STYROFOAM BOX-1	640*562*75	EA	1	
2	9205-AS0-0003-0	STYROFOAM BOX-2	640*562*227	EA	1	
3	9100-LP2-0133-0	C/T BOX-1	645*570*315	EA	1	
4	9100-LP2-0W30-0	C/T BOX-W	670*600*345	EA	1	
5	9307-A00-0003-A	POLY BAG (SET)	700*750*0.04t	EA	1	
6	9303-A00-0004-0	POLY BAG (HEAD)	350*450*0.05t	EA	2	
7	9002-LP2-0033-0	MANUAL	LP-2 ENGLISH	EA	1	
8	9300-A00-0001-0	POLY BAG (FUSE)	50*60*0.05t	EA	1	
9	9300-A00-0003-0	POLY BAG (MANUAL)	230*330*0.05t	EA	1	
10	9400-A00-0046-0	SILICAGEL	10g	EA	3	
11	9900-A00-0002-0	SEALING WIRE	300M/ROLL	EA	1	
12	9900-A00-0001-0	SEALING LEAD	OVERSEAS	EA	1	
13	9102-LP2-0130-0	PAD	635*560	EA	1	

Appendix A-Country Codes

#	Country	#	Country	#	Country
101		161	Denmark	221	
102		162	Djibouti	222	
103		163	Dominica	223	
104		164	Dominican Republic	224	
105		165		225	Laos
106		166		226	Latvia
107		167	Ecuador	227	Lebanon
108		168	Egypt	228	Lesotho
109		169	El Salvador	229	Liberia
110	Afghanistan	170	Equatorial Guinea	230	Libya
111	Algeria	171	Eritrea	231	Liechtenstein
112	Andorra	172	Estonia	232	Lithuania
113	Angola	173	Ethiopia	233	Luxembourg
114	Antarctica	174	Ecuador	234	
115	Antigua & Barbuda	175		235	
116	Argentina	176		236	Macedonia
117	Armenia	177	Fiji	237	Madagascar
118	Australia	178	Finland	238	Malawi
119	Austria	179	France	239	Malaysia
120	Azerbaijan	180		240	Maldives
121		181		241	Mali
122		182	Gabon	242	Malta
123	Bahamas	183	Gambia	243	
124	Bahrain	184	Georgia	244	
125	Bangladesh	185	Germany	245	Marshall Islands
126	Barbados	186	Ghana	246	Mauritania
127	Belarus	187	Greece	247	Mauritius
128	Belgium	188	Grenada	248	Mexico
129	Belize	189	Guatemala	249	Micronesia
130	Benin	190	Guinea	250	Moldova
131	Bhutan	191	Guinea-Bissau	251	Monaco
132	Bolivia	192	Guyana	252	Mongolia
133	Bosnia & Herzegovina	193		253	Morocco
134	Botswana	194		254	Mozambique
135	Brazil	195	Haiti	255	
136	Brunei	196	Honduras	256	
137	Bulgaria	197	Hungary	257	Namibia
138	Burkina Faso	198		258	Nauru
139	Burma/Myanmar	199		259	Nepal
140		200	Iceland	260	Netherlands
141		201	India	261	New Zealand
142	Cambodia	202	Indonesia	262	Nicaragua
143	Cameroon	203	Iran	263	Niger
144	Canada	204	Iraq	264	Nigeria
145	Cape Verde	205	Ireland	265	Norway
146	Central African Republic	206	Israel	266	
147	Chad	207	Italy	267	
148	Chile	208		268	Oman
149	China	209		269	
150	Colombia	210	Jamaica	270	
151	Comoros	211	Japan	271	Pakistan
152	Congo	212	Jordan	272	Palau
153	Congo, Democratic Rep. of	213		273	Panama
154	Costa Rica	214		274	Papua New
155	Cote d'Ivoire	215	Kazakstan	275	Paraguay
156	Croatia	216	Kenya	276	Peru
157	Cuba	217	Kiribati	277	Philippines
158	Cyprus	218	Korea, North	278	Poland
159		219	Korea, South	279	Portugal
160		220	Kuwait	280	

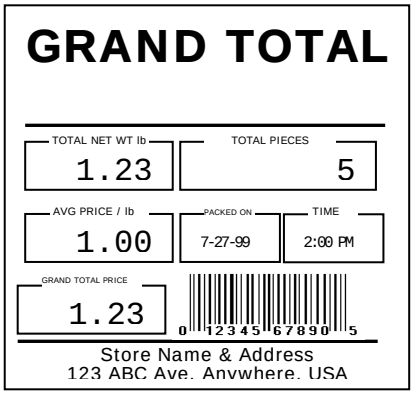
Appendix A-Country Codes

#	Country	#	Country	#	Country
281		306	Sri Lanka	331	United Kingdom
282	Qatar	307	Sudan	332	United States
283		308	Suriname	333	
284		309	Swaziland	334	
285	Romania	310	Sweden	335	Uruguay
286	Russian Federation	311	Switzerland	336	Uzbekistan
287	Rwanda	312	Syria	337	
288		313		338	
289		314		339	Vanuatu
290	Saint Kitts	315	Taiwan	340	Vatican City
291	Saint Lucia	316	Tajikistan	341	Venezuela
292	Saint Vincent	317	Tanzania	342	Vietnam
293	San Marino	318	Thailand	343	
294	Sao Tome	319	Togo	344	
295	Saudi Arabia	320	Tonga	345	Western Samoa
296	Senegal	321	Trinidad and Tobago	346	
297	Seychelles	322	Tunisia	347	
298	Sierra Leone	323	Turkey	348	Yemen
299	Singapore	324	Turkmenistan	349	Yugoslavia
300	Slovakia	325	Tuvalu	350	
301	Slovenia	326		351	
302	Solomon Islands	327		352	Zambia
303	Somalia	328	Uganda	353	Zimbabwe
304	South Africa	329	Ukraine	354	
305	Spain	330	United Arab Emirates	355	
0	COUNTRY CODE NOT USED.				

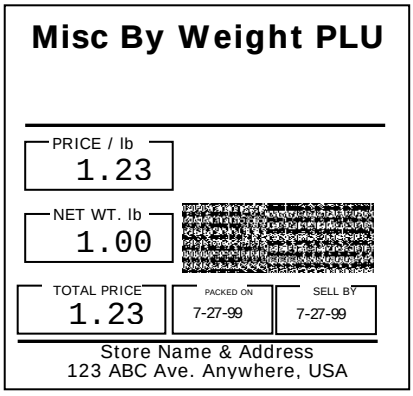
Appendix B-Label Formats

Format numbers 1 to 99 are built into LP-2; however, only 56 of the 99 available label formats are used. These formats are a permanent part of the LP-2's memory and CANNOT be lost or erased. Using the LP-2 version 2.14 software package, you can program format numbers 100 to 999. Provided you have enough memory, you can download those formats from your PC to your LP-2.

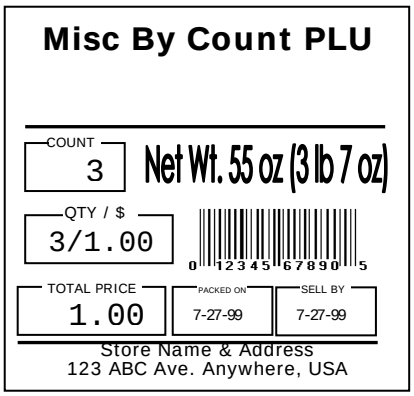
In all of the listings below, the label format number that is in bold is the number that you input to your PLUs when you wish to use that label. The numbers prefixed with "**LST**" are Rittenhouse Inc. stock numbers. Dimensions are specified as **Width X Length**.



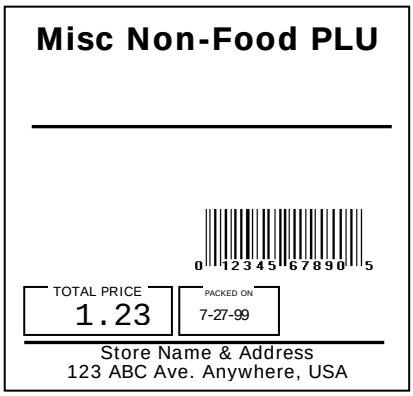
98: 50mm X 45mm
Add Up Total Format



99: 50mm X 45mm
Universal 50x45 Format



99: 50mm X 45mm
Universal 50x45 Format



99: 50mm X 45mm
Universal 50x45 Format

Appendix B-Label Formats

Number	Description	Scale Manufacturer	Stock #
1	58mm X 30mm Non-UPC	CAS	LST-8000
2	58mm X 40mm UPC	CAS	LST-8010
3	58mm X 60mm UPC Ingredients	CAS	LST-8020
4	58mm X 50mm Safe Handling Non-UPC	CAS	LST-8030
5	58mm X 60mm Safe Handling UPC	CAS	LST-8040
6	64mm Continuous, UPC, Ingredients, Nutri-Facts	CAS	LST-8050
7	58mm X 100mm, UPC, Safe Handling, Ingredients	CAS	LST-8060
8	58mm X 140mm, UPC, Ingredients	CAS	LST-8021
20	60mm X 80mm, UPC, Safe Handling	Digi/NBI	LST-1264
21	60mm X 43mm, UPC	Digi/NBI	LST-6110
22	60mm X 55mm, UPC, Ingredients	Digi/NBI	LST-6250
23	40mm X 92mm, UPC, Ingredients	Digi/NBI	LGT-6410
24	40mm X 62mm, UPC	Digi/NBI	LGT-1211
25	40mm X 45mm, Non-UPC	Digi/NBI	LST-6340
50	64mm X 47mm, UPC	Ishida	LST-4150
51	64mm X 49mm, UPC, Ingredients	Ishida	LST-4160
52	64mm X 49mm, UPC, Ingredients	Ishida	LST-4160
55	67mm X 37.5mm Non-UPC	Kubota	LST-3330
56	67mm X 47.5mm Non-UPC	Kubota	LST-3370
57	67mm X 47.5mm UPC	Kubota	LST-3360
58	54mm X 52.5mm UPC	Kubota	LST-3610
60	57mm X Continuous, UPC, Safe Handling, Ingredients	TEC	LST-5030
61	48mm X 40mm, UPC	TEC	LST-2530
62	48mm X 69.3mm UPC, 6 Line Ingredient	TEC	LST-2540
63	48mm X 54.8mm UPC, 6 Line Ingredient	TEC	LST-2730
64	57mm X 63.5mm, UPC, 6 Line Ingredients	TEC	LST-4910
65	57mm X 49.2mm, UPC	TEC	LST-4900
66	57mm X 63.5mm, UPC, Safe Handling	TEC	LST-4914
98	50mm X 45mm Grand Total Format for ST/TL key (ADD mode.)	CAS	
99	50mm X 45mm Universal Format	CAS	

There are many more formats that are the same or similar to the above, in which case the LP-2 is capable of using those labels. For a complete cross-reference and listing, visit us on the web at www.cas-usa.com. These formats are subject to change without notice. Type the format number into a Label Format field to determine if your scale has such a format

Notes: